

Appendix B Part I: -X Axis
BSSNET2A-115W 17BSS
Antenna Patterns (EIRP Plots)

CONUS Beam Maximum Allowable EIRP / Antenna Gain to Meet -117dBW/m²/100KHz

CONUS BEAM	
Satellite Location ^o WL	-115.00
Nearest DBS Satellite Location ^o WL	-118.80
Miniumum Spacing (w/Station Keeping @+--0.05)	3.70
Max PFD Flux Density, -117 dBW/m ² /100 kHz	-117.0
Channel Bandwidth, MHz	24.0
Effective Bandwidth, dB-100 kHz	23.8
PFD Flux Density Allowed per Channel, dBW/m ²	-93.2
R, Radial Distance to GEO, km	42,164.0
Min. Angle of Separation between Satellites, deg	3.70
Range between Satellites, km	2722.8
Spreading factor, dB/ m ²	-139.7
Atmospheric loss, dB	0
Maximum EIRP Allowed at Minimum Separation, dBW	46.5
Peak Satellite EIRP, dBW ²	60.2
Boresight Antenna Gain, dB ³	36.4
Tx Power into Antenna, dBW	23.8
Max Antenna Gain to Meet Space Path Spec, dB	22.7
Max Off-Axis EIRP from Plots ⁴ , dBW	5.38
Max Antenna Gain from Plots, dB	-18.42
PFD / Ant Gain Margin, dB	41.1

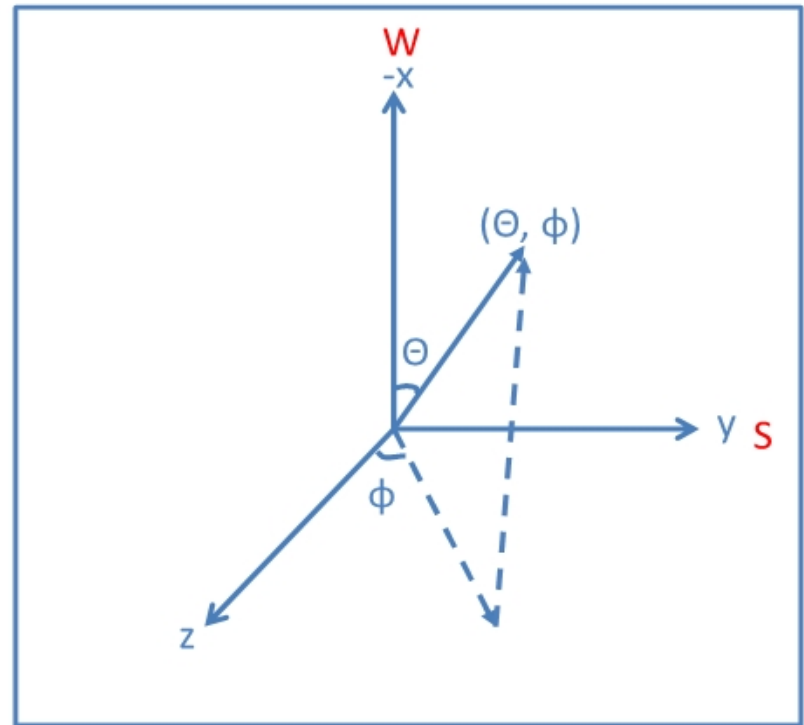
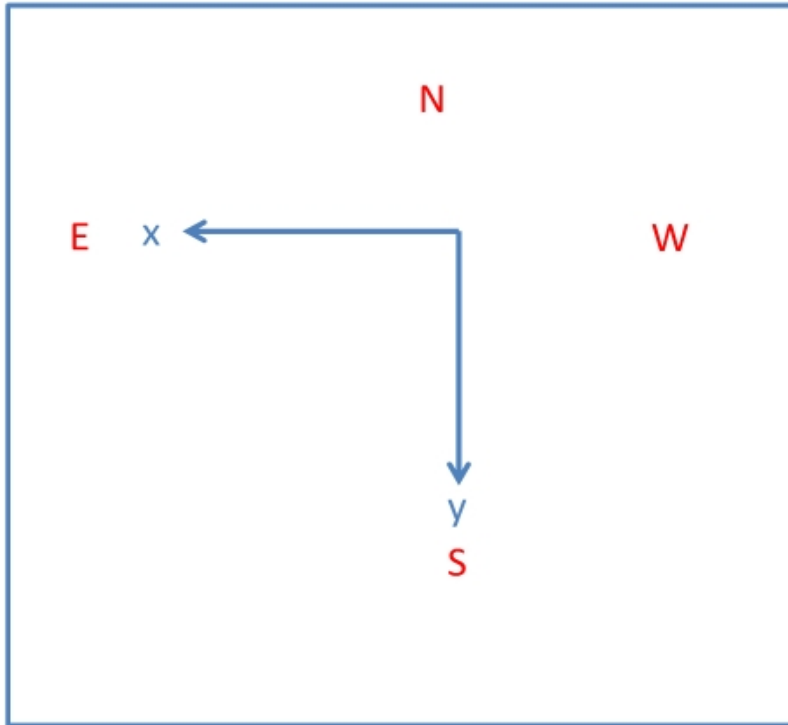
¹ As defined in FCC Section 25.264(a)

² from Schedule S7, column (m) [includes 1.7 dB margin for narrow frequency band, temperature and life]

³ from Schedule S7, column (c)

⁴ Reference to Plot File: tx-17.5-rhcp-10.cut

Coordinate System



CONUS Beam, -X Axis Plots

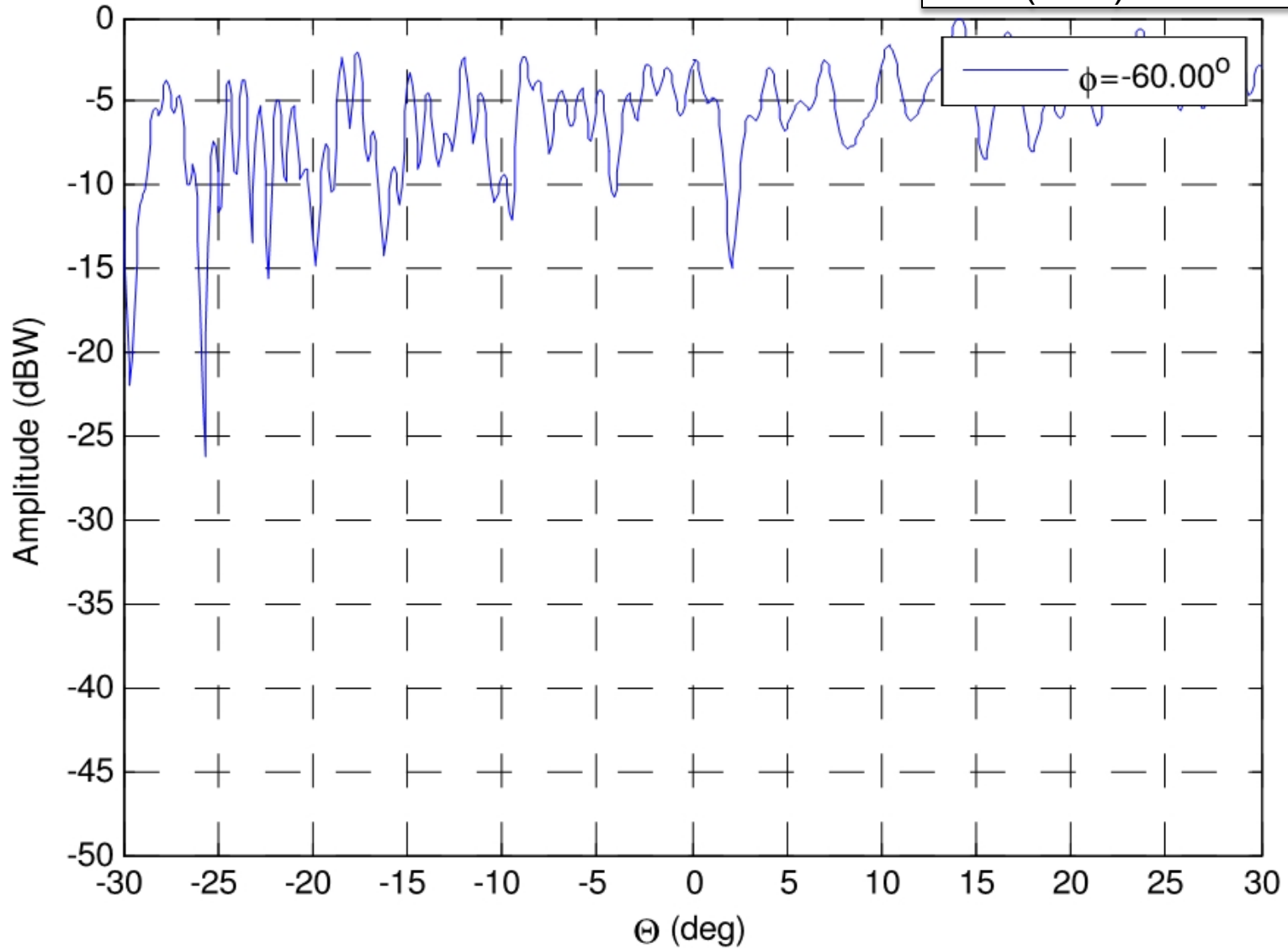
- Both polarizations; RHCP; LHC)
- $-30 < \Theta < 30$ ($\Theta=0$: +X-axis)
- $-60 < \phi < 60$
- Freq = 17.3, 17.5, and 17.7 GHz

- The zero reference line on each plot is the peak EIRP in the title of the chart
- All off-axis EIRP levels are well below the 46.5 dBW level at the 3.7° separation (>40 dB margin)

RHCP at 17.3 GHz

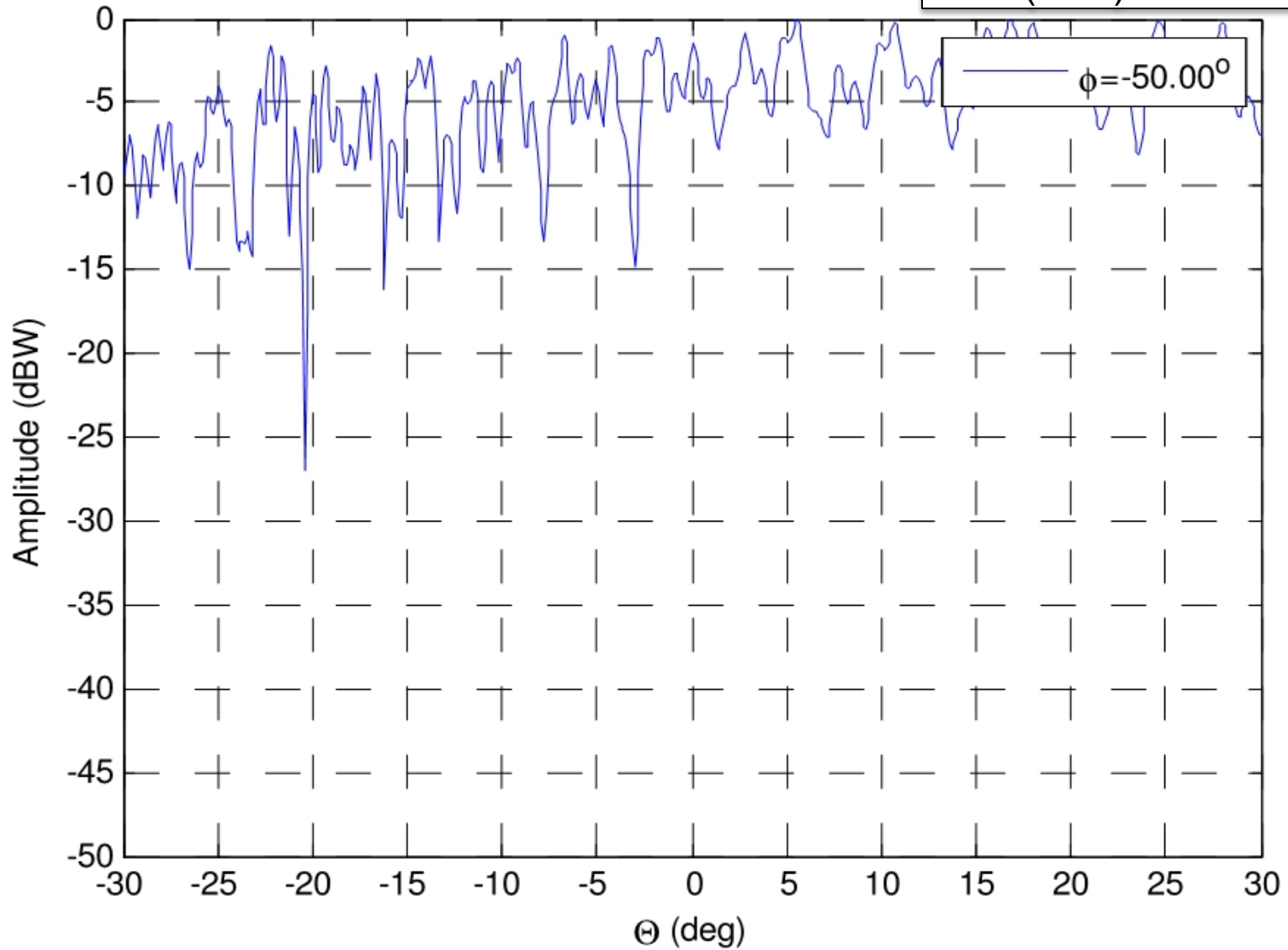
Normalized pattern cuts - farfield

Input file: tx-17.3-rhcp--60.cut, Peak: -1.83 dBW, EIRP (max) = 60.2 dBW



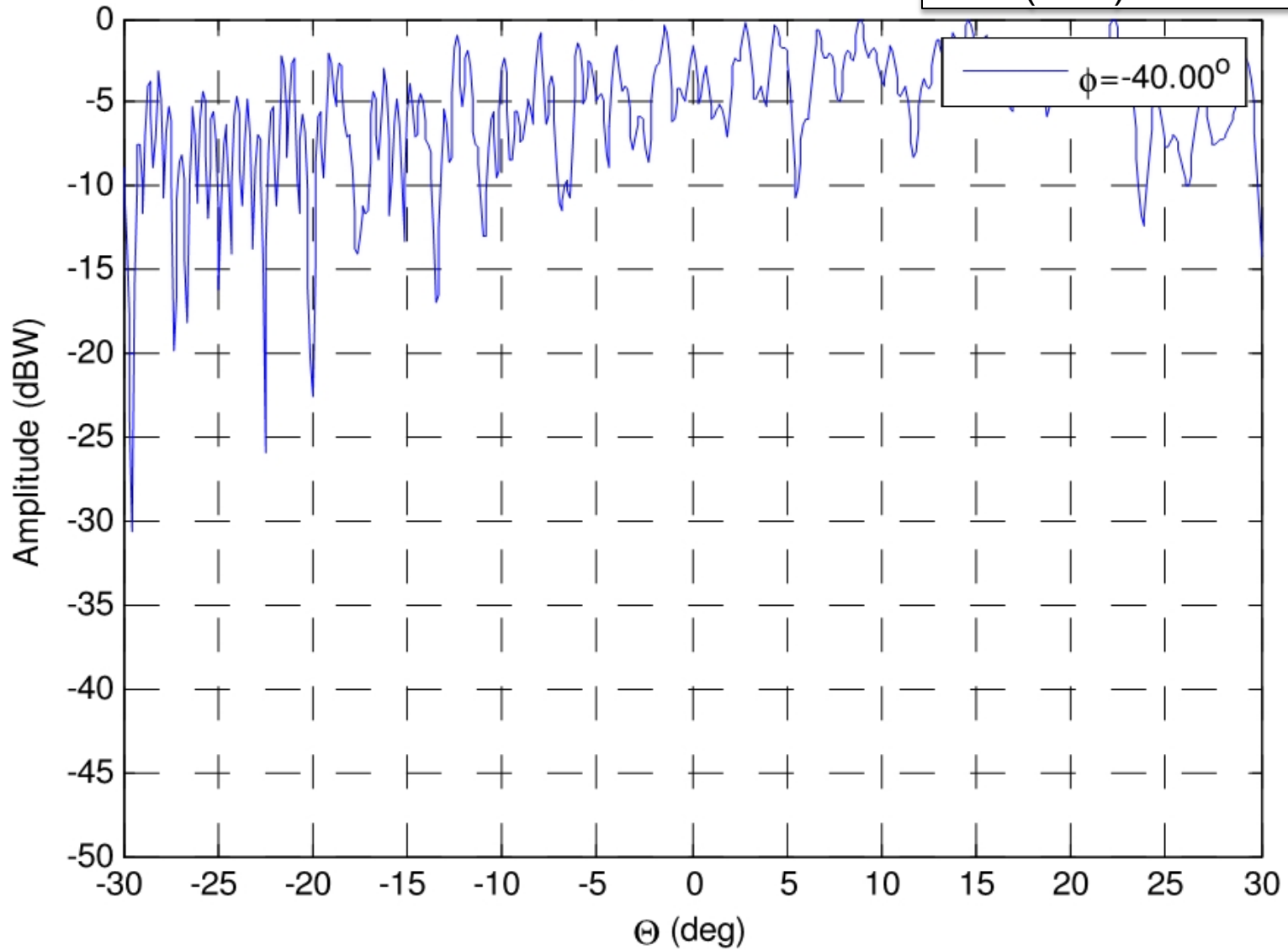
Normalized pattern cuts - farfield

Input file: tx-17.3-rhcp--50.cut, Peak: -2.89 dBW, EIRP (max) = 60.2 dBW



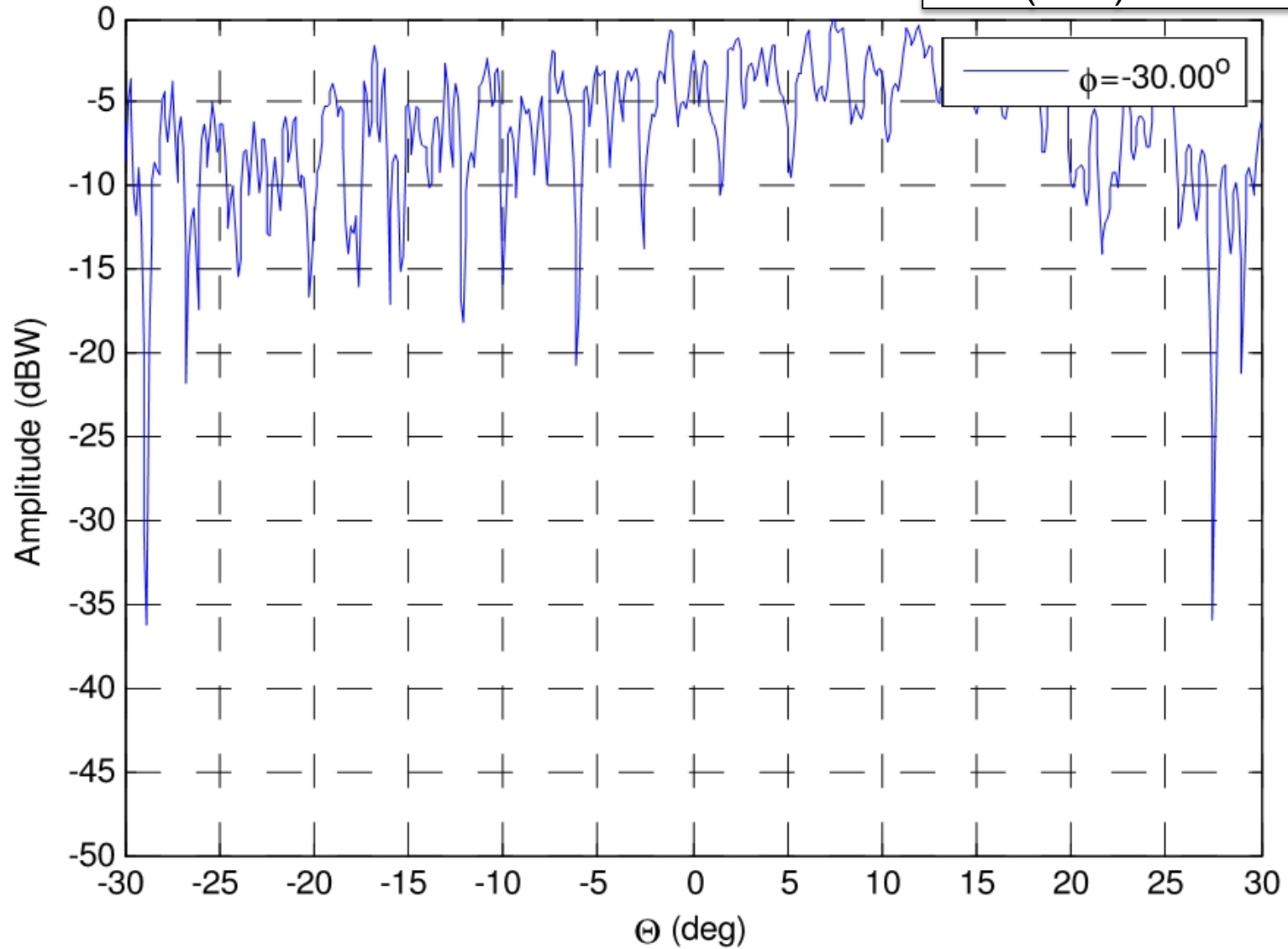
Normalized pattern cuts - farfield

Input file: tx-17.3-rhcp--40.cut, Peak: -2.83 dBW, EIRP (max) = 60.2 dBW



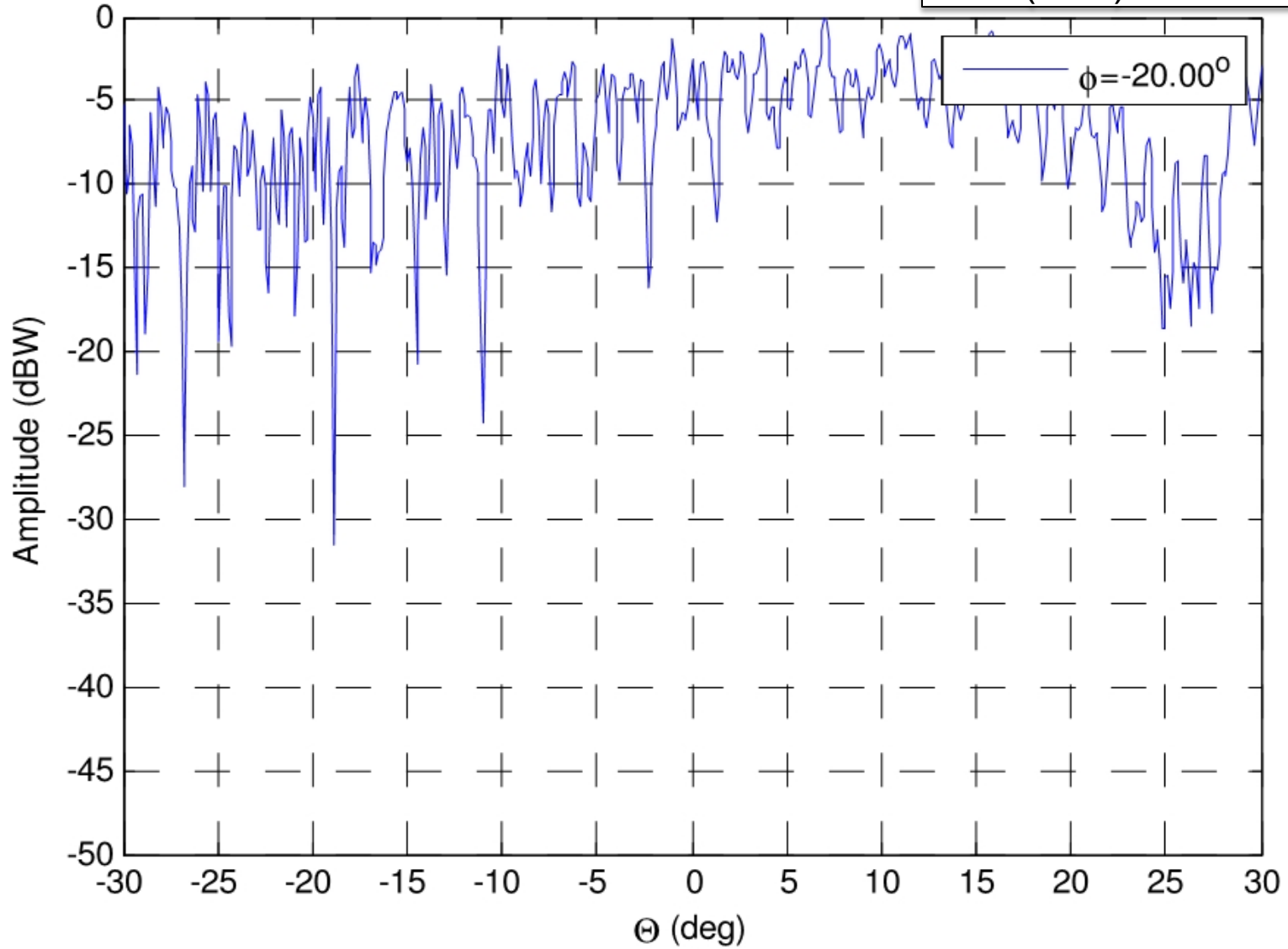
Normalized pattern cuts - farfield

Input file: tx-17.3-rhcp--30.cut, Peak: -2.57 dBW, EIRP (max) = 60.2 dBW



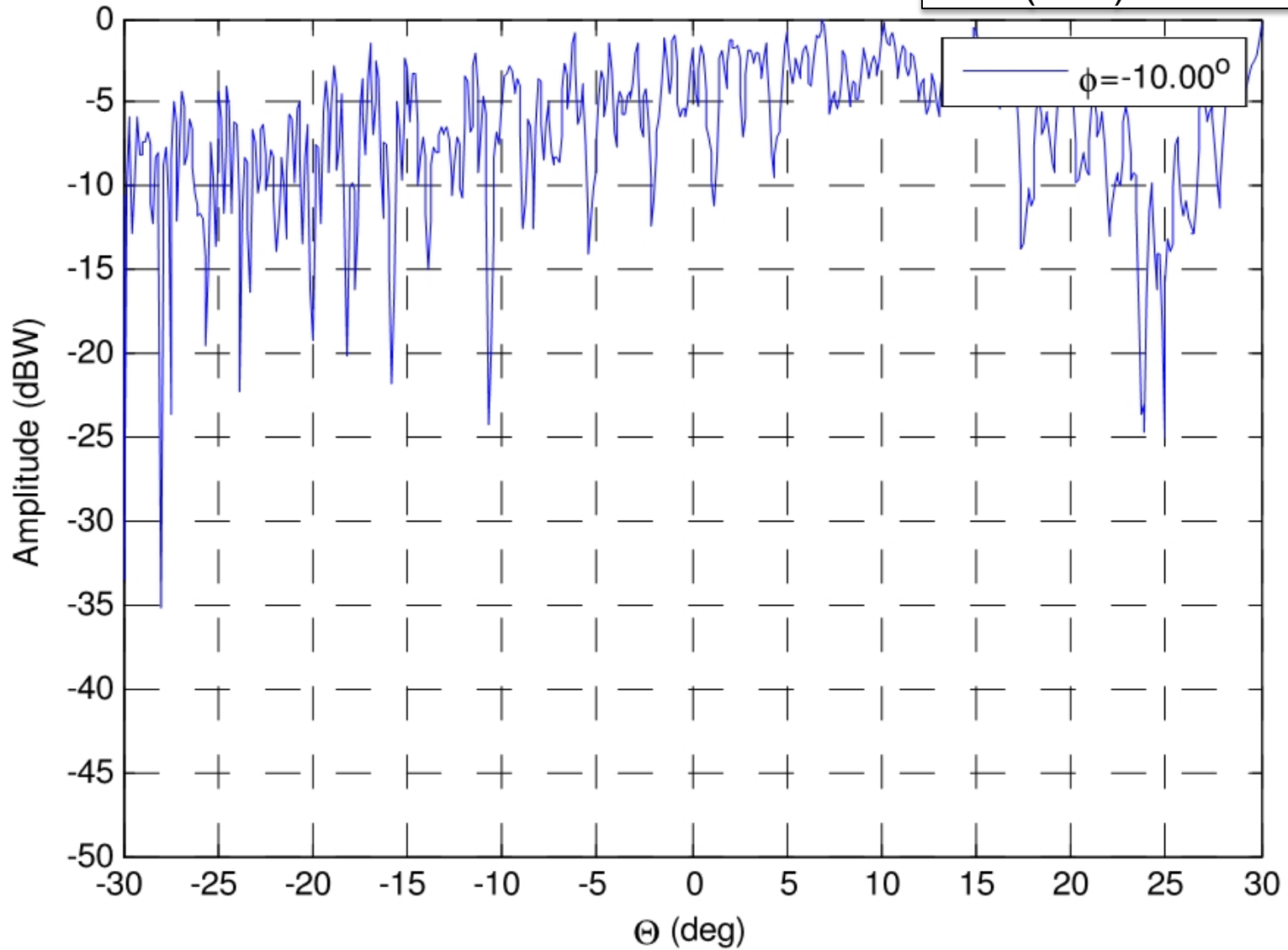
Normalized pattern cuts - farfield

Input file: tx-17.3-rhcp--20.cut, Peak: -2.08 dBW, EIRP (max) = 60.2 dBW



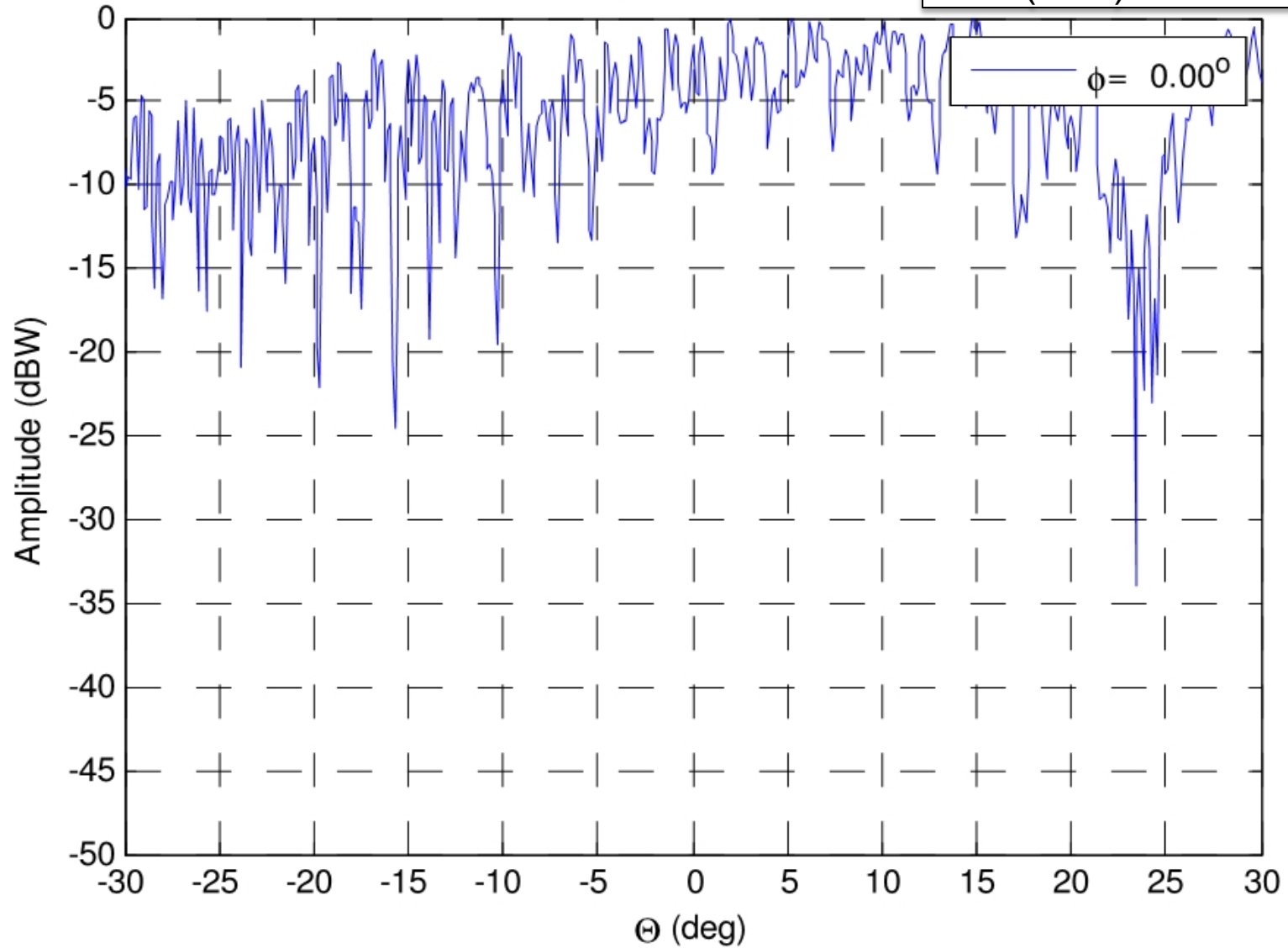
Normalized pattern cuts - farfield

Input file: tx-17.3-rhcp--10.cut, Peak: -2.71 dBW, EIRP (max) = 60.2 dBW



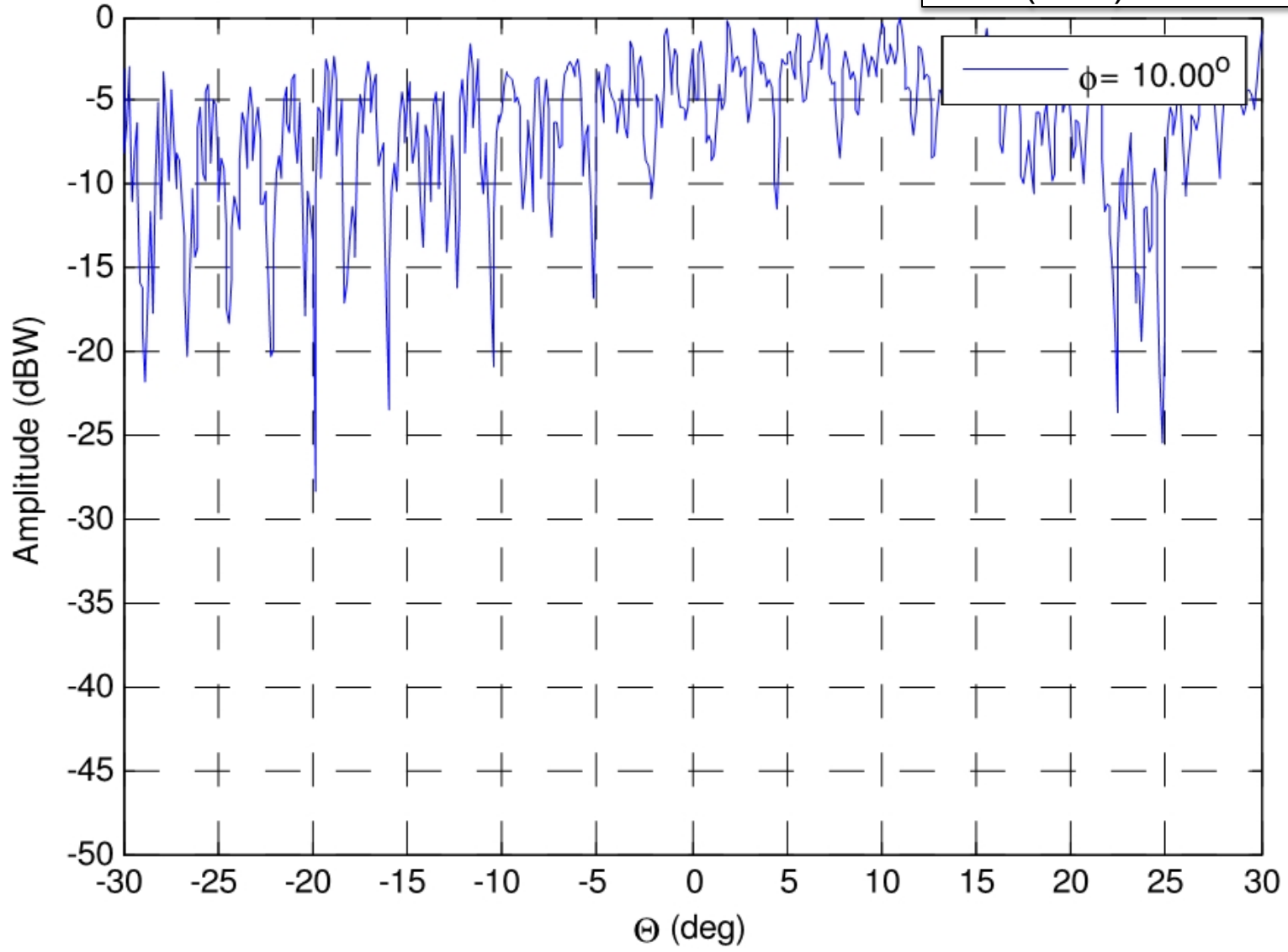
Normalized pattern cuts - farfield

Input file: tx-17.3-rhcp-0.cut, Peak: -2.98 dBW, EIRP (max) = 60.2 dBW



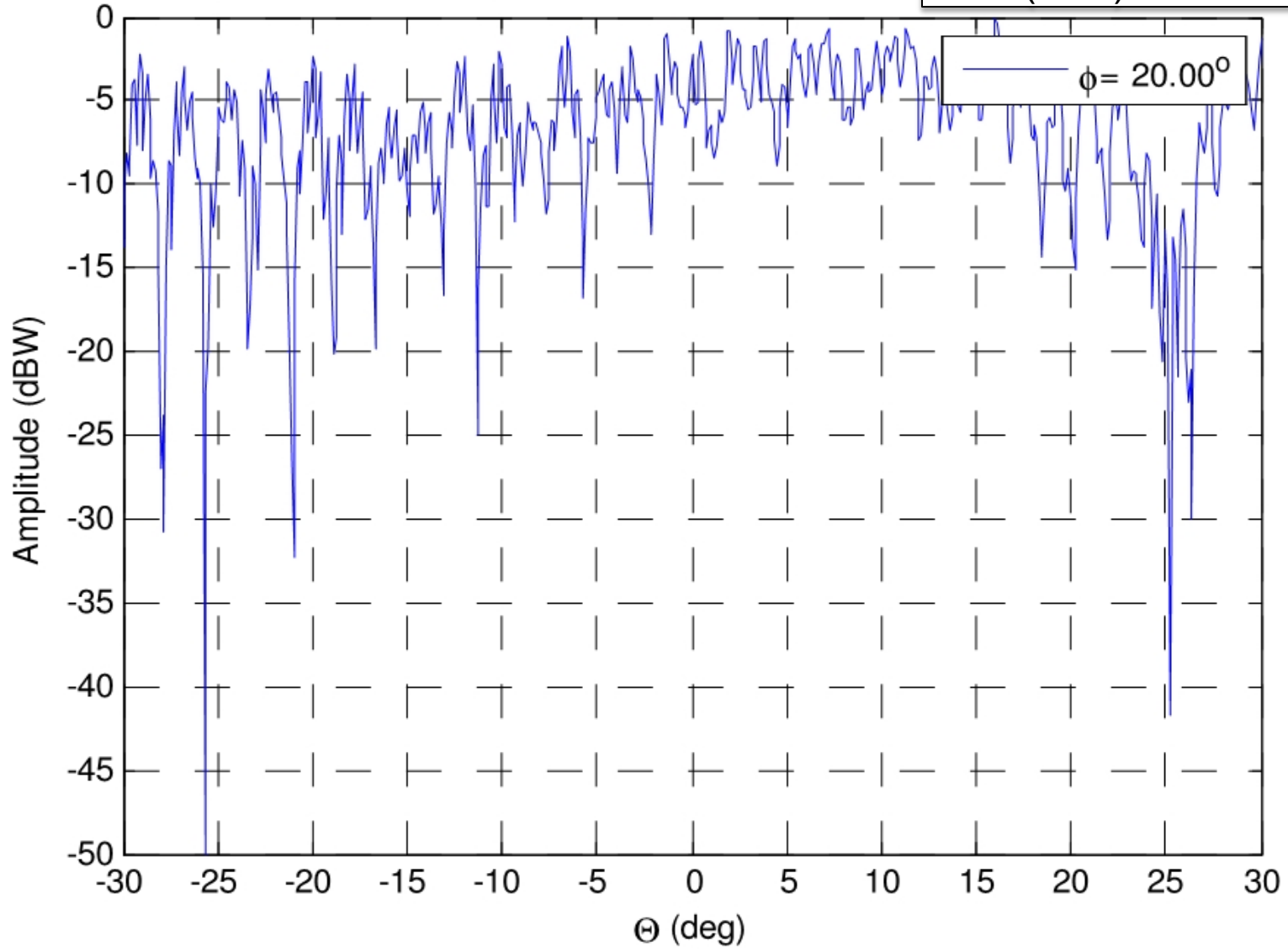
Normalized pattern cuts - farfield

Input file: tx-17.3-rhcp-10.cut, Peak: -2.61 dBW, EIRP (max) = 60.2 dBW



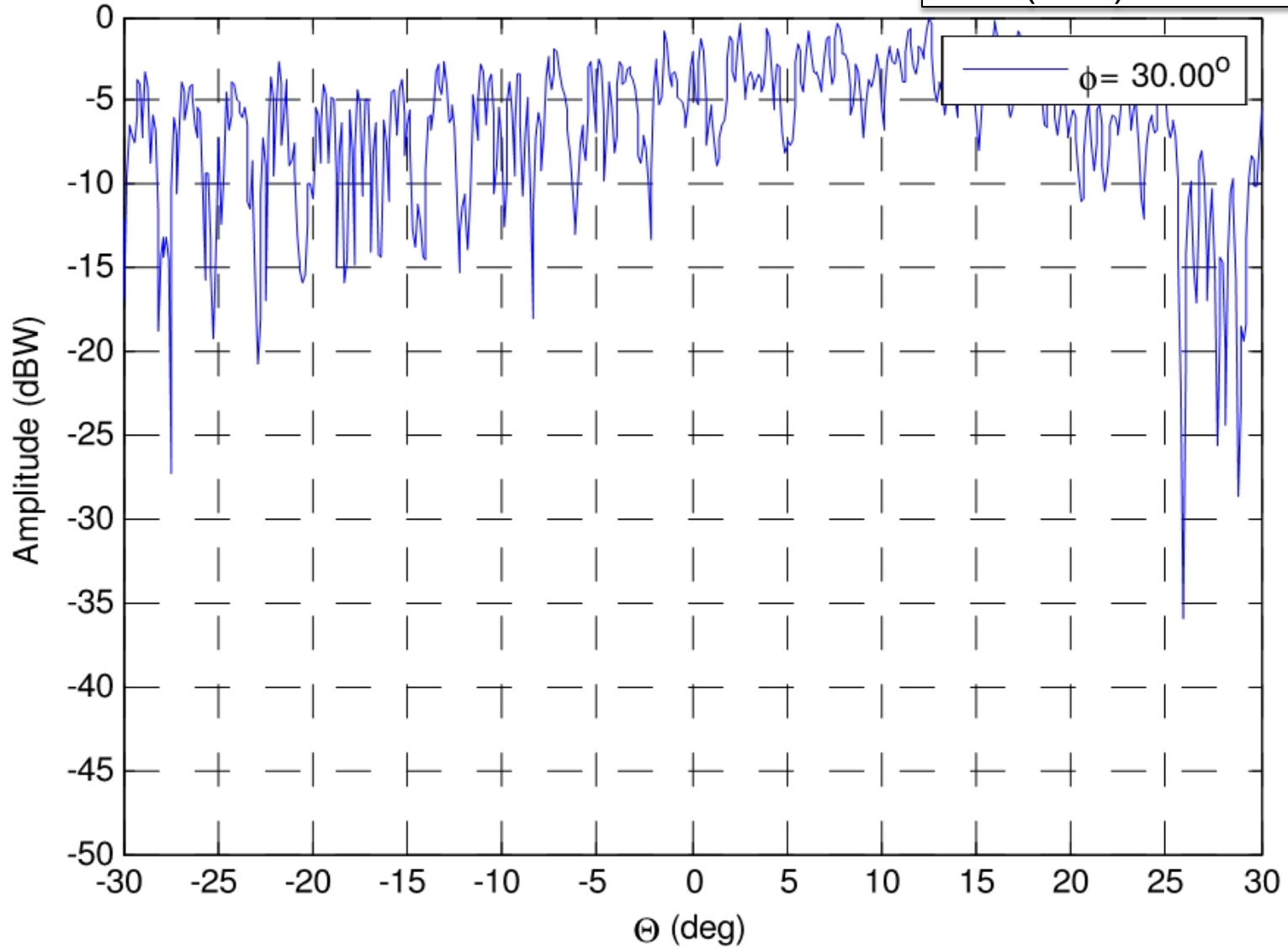
Normalized pattern cuts - farfield

Input file: tx-17.3-rhcp-20.cut, Peak: -2.33 dBW, EIRP (max) = 60.2 dBW



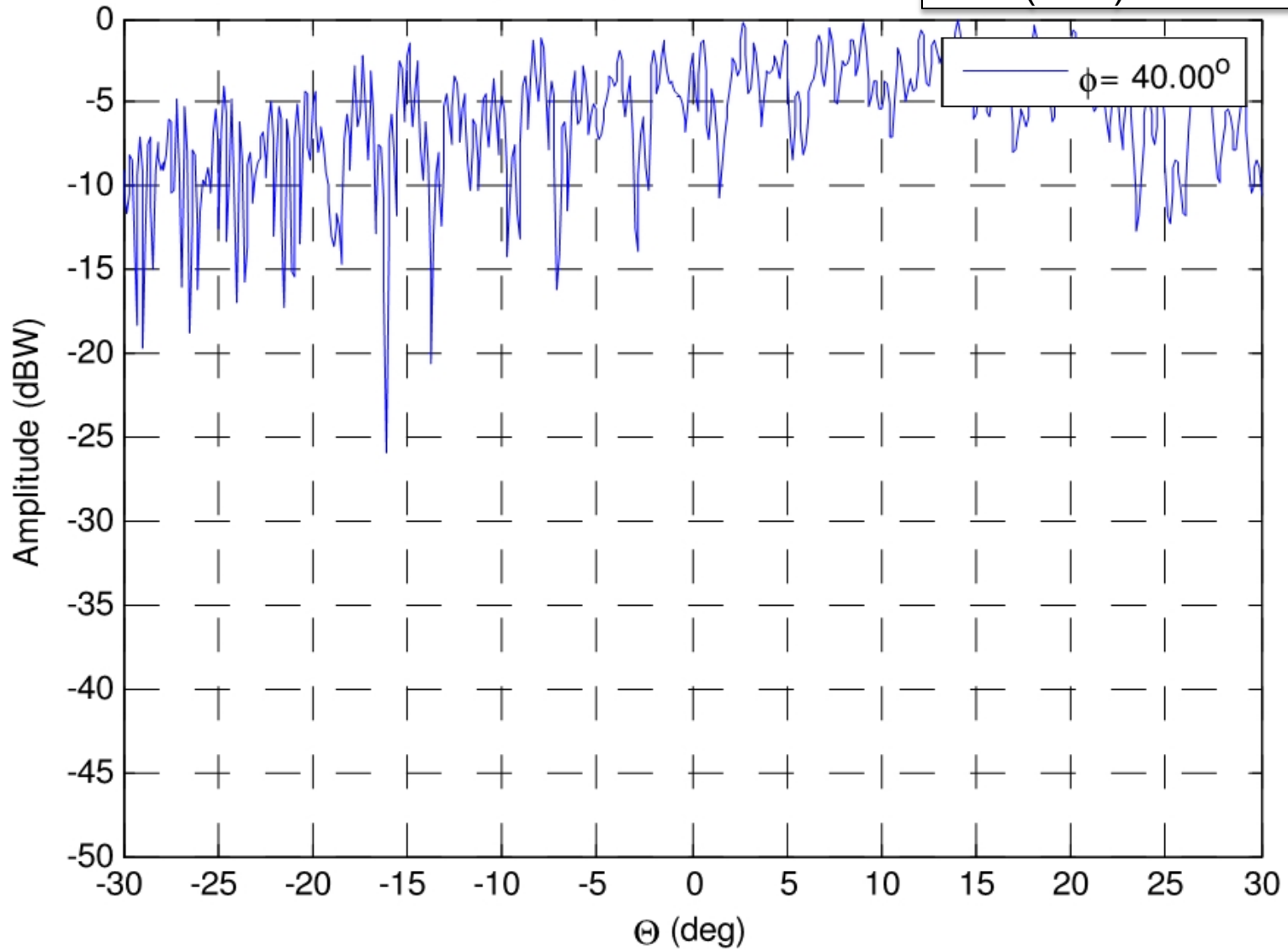
Normalized pattern cuts - farfield

Input file: tx-17.3-rhcp-30.cut, Peak: -2.46 dBW, EIRP (max) = 60.2 dBW



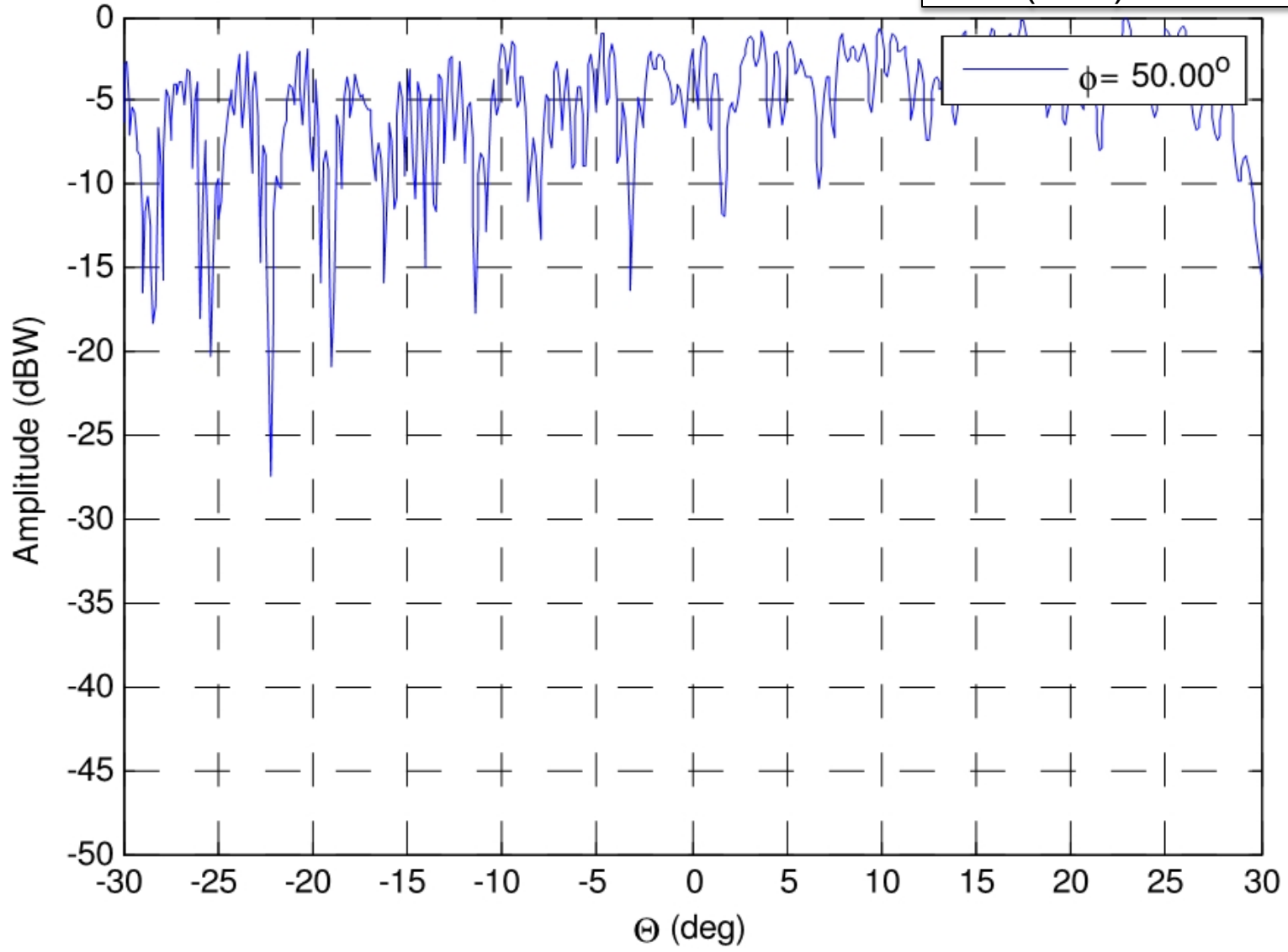
Normalized pattern cuts - farfield

Input file: tx-17.3-rhcp-40.cut, Peak: -2.51 dBW, EIRP (max) = 60.2 dBW



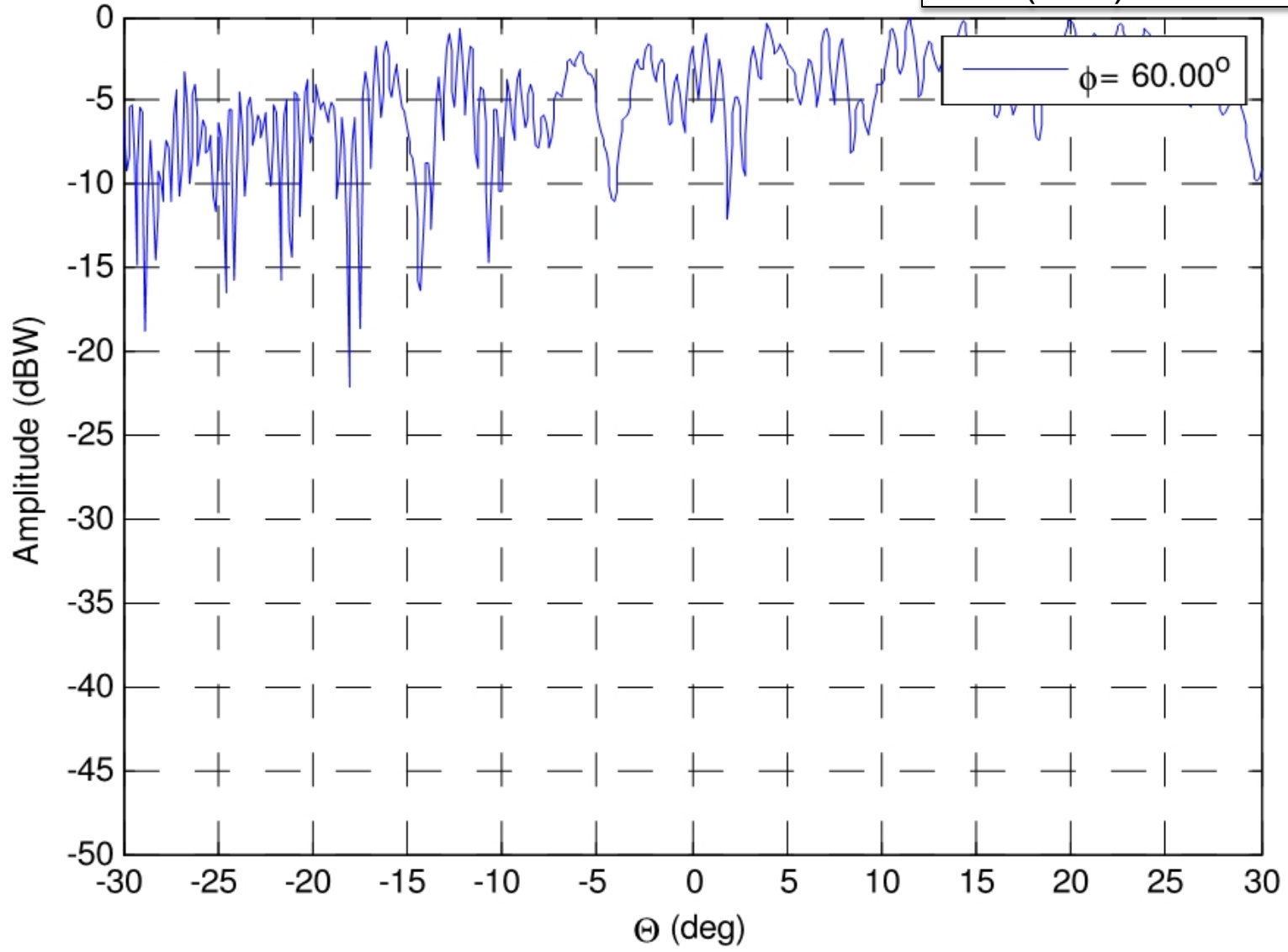
Normalized pattern cuts - farfield

Input file: tx-17.3-rhcp-50.cut, Peak: -2.59 dBW, EIRP (max) = 60.2 dBW



Normalized pattern cuts - farfield

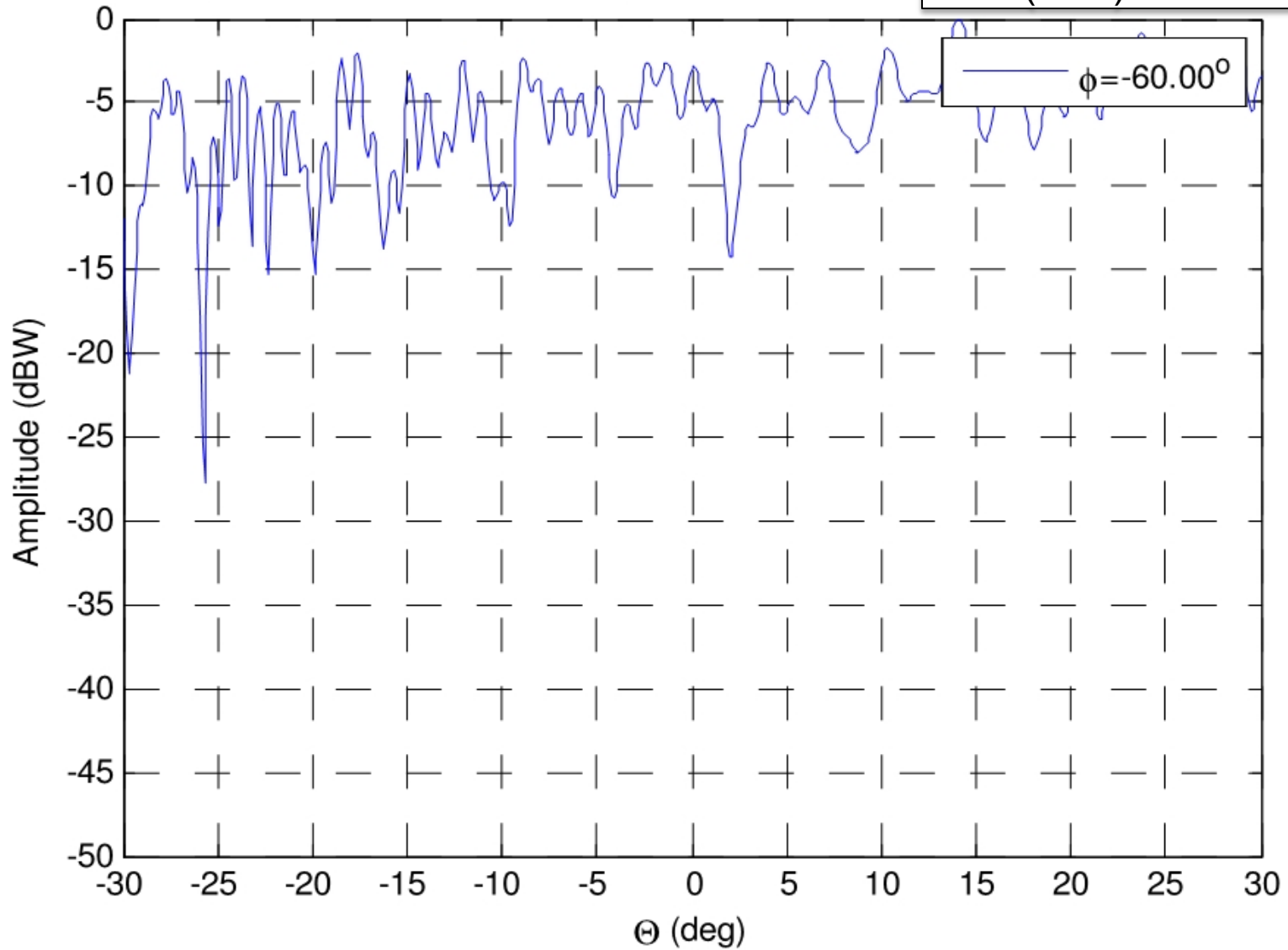
Input file: tx-17.3-rhcp-60.cut, Peak: -2.75 dBW, EIRP (max) = 60.2 dBW



LHCP at 17.3 GHz

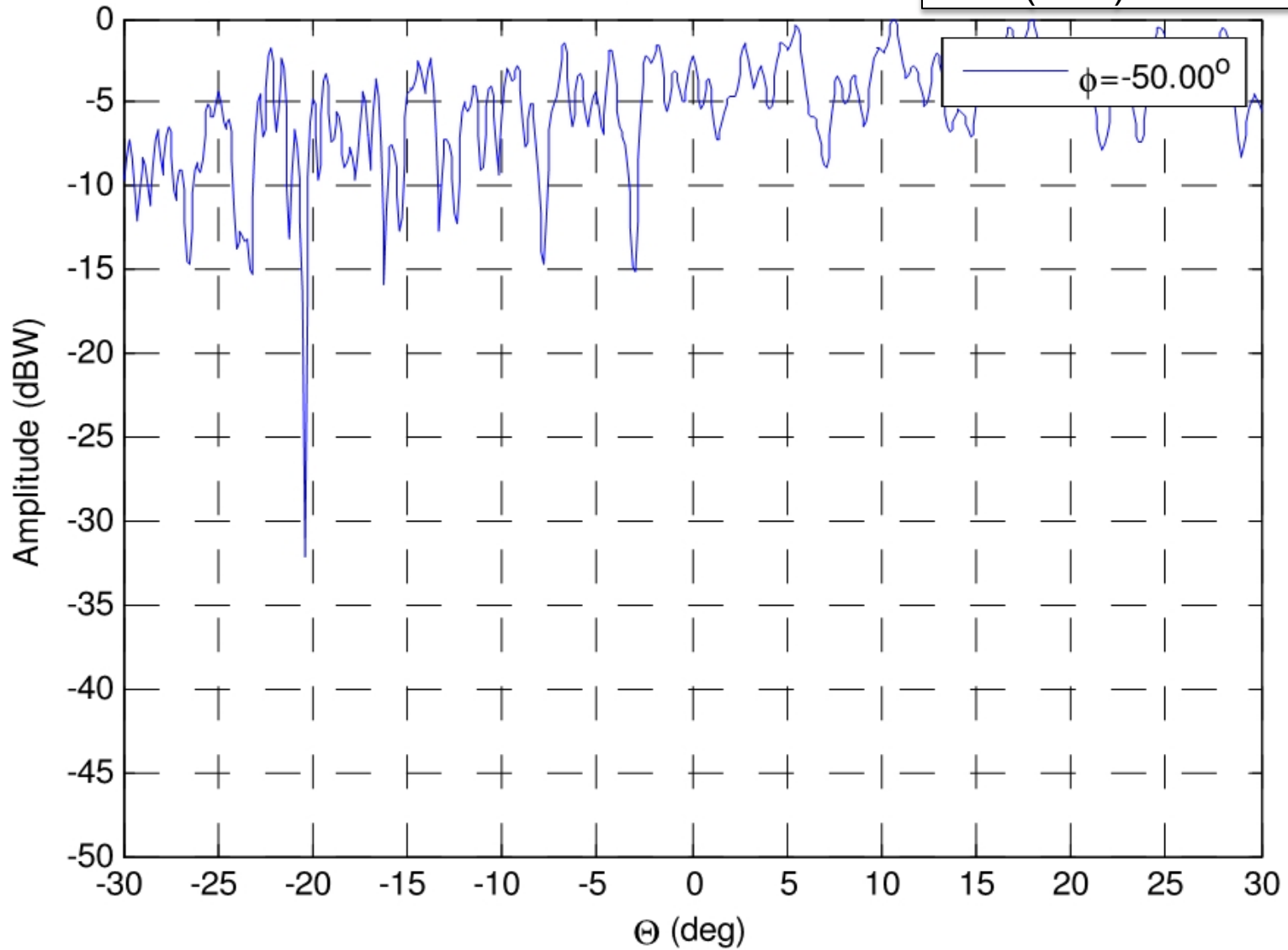
Normalized pattern cuts - farfield

Input file: tx-17.3-lhcp--60.cut, Peak: -1.85 dBW, EIRP (max) = 60.2 dBW



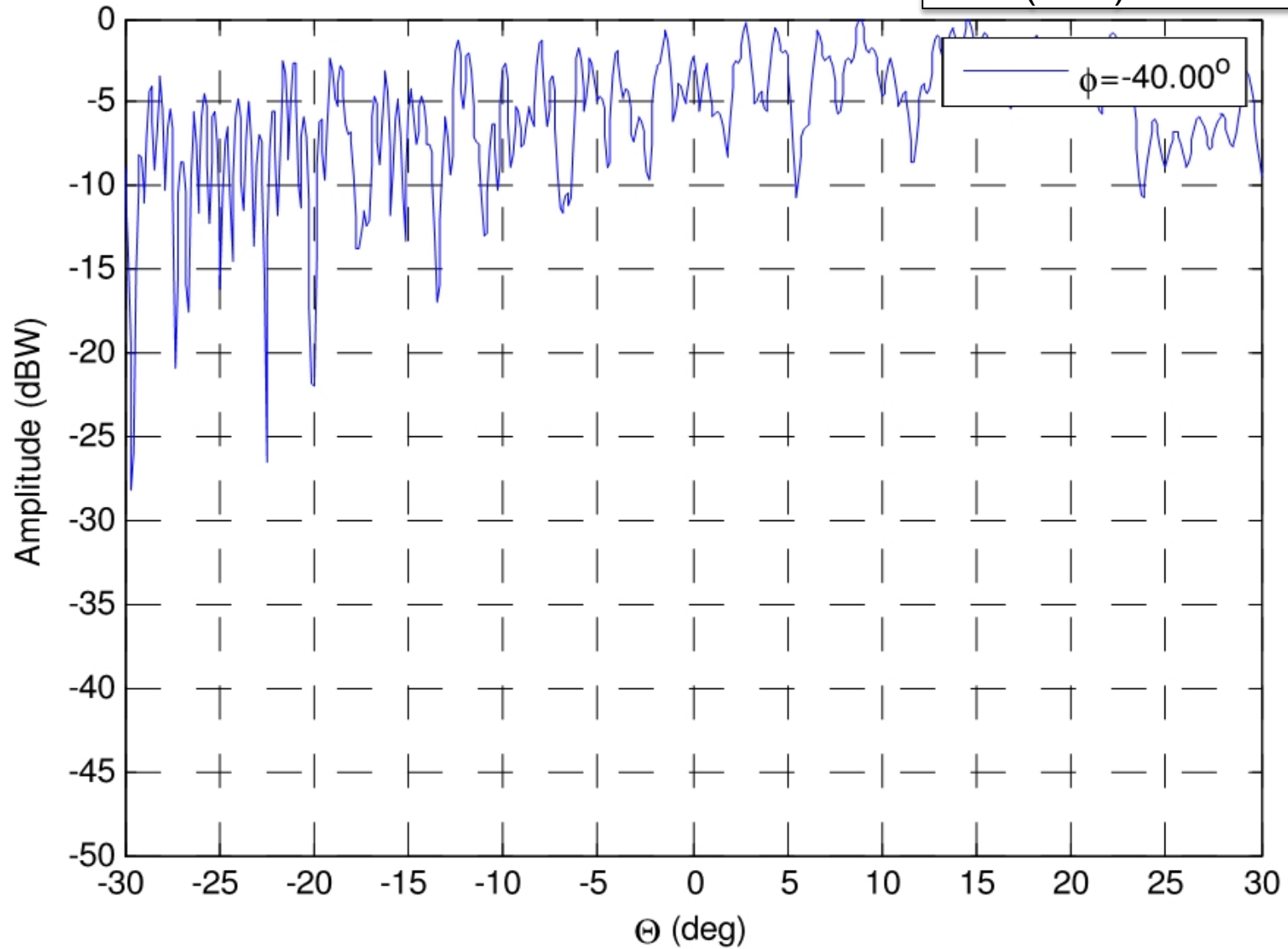
Normalized pattern cuts - farfield

Input file: tx-17.3-lhcp--50.cut, Peak: -2.60 dBW, EIRP (max) = 60.2 dBW



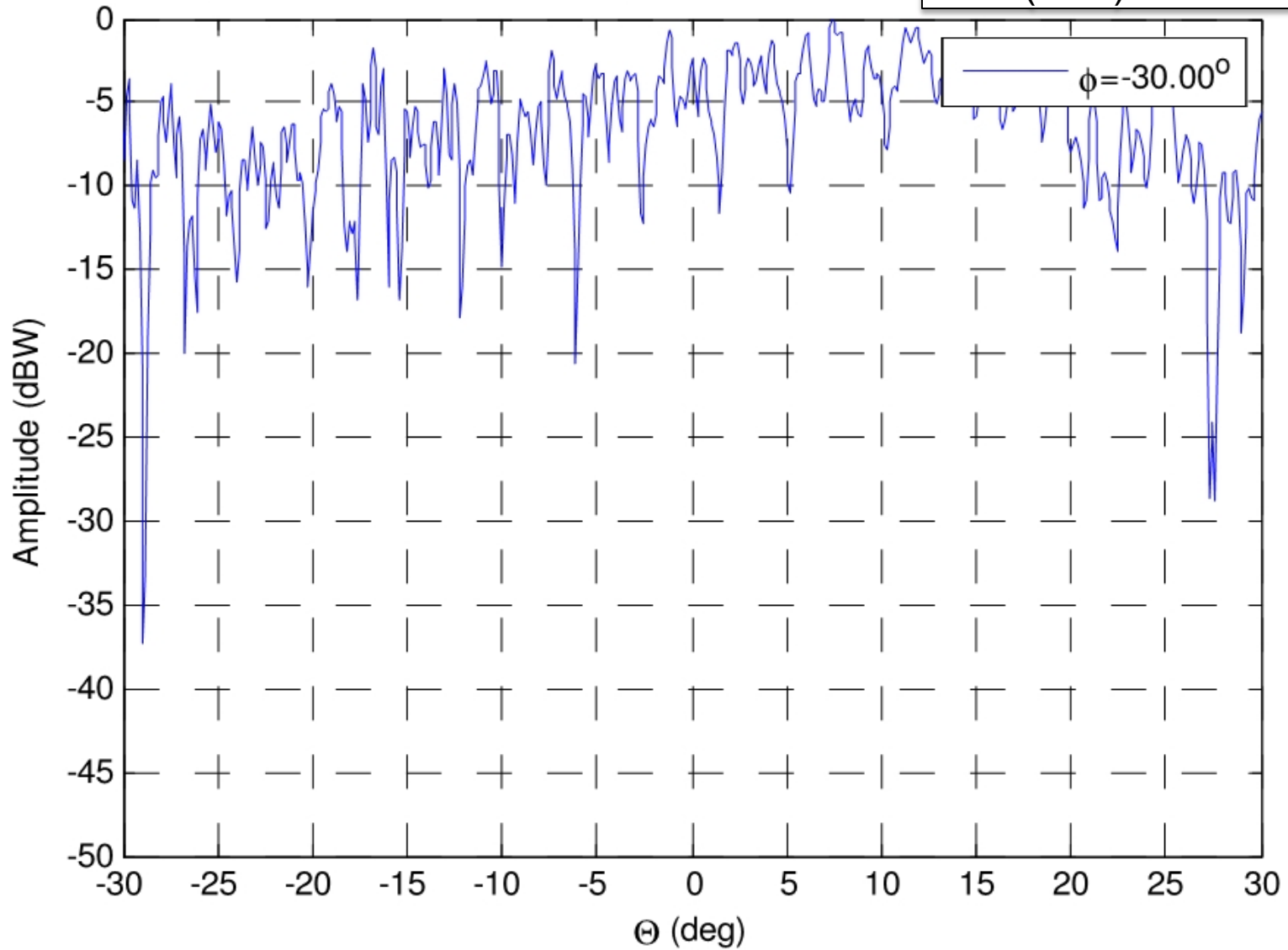
Normalized pattern cuts - farfield

Input file: tx-17.3-lhcp--40.cut, Peak: -2.65 dBW, EIRP (max) = 60.2 dBW



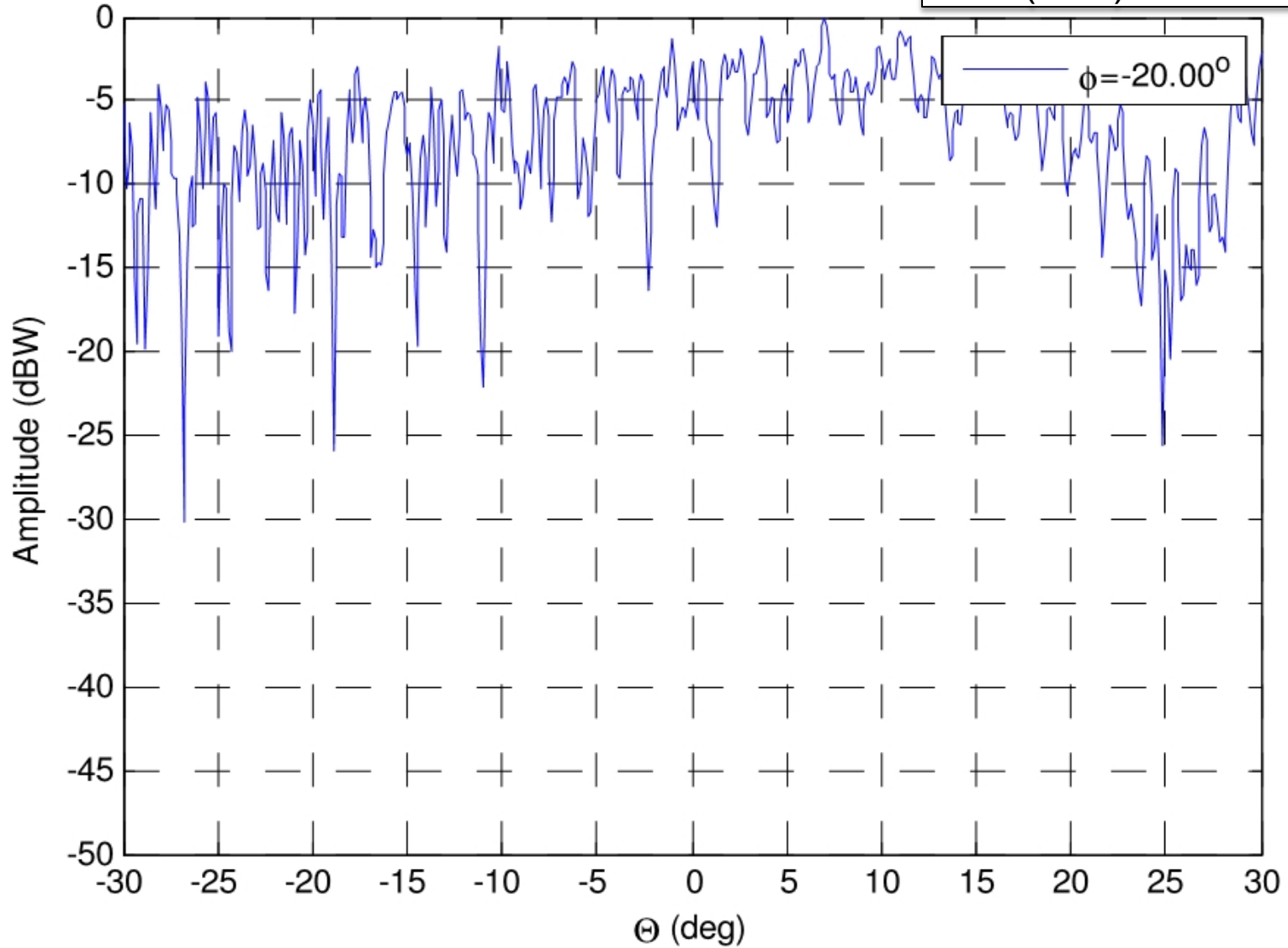
Normalized pattern cuts - farfield

Input file: tx-17.3-lhcp--30.cut, Peak: -2.47 dBW, EIRP (max) = 60.2 dBW



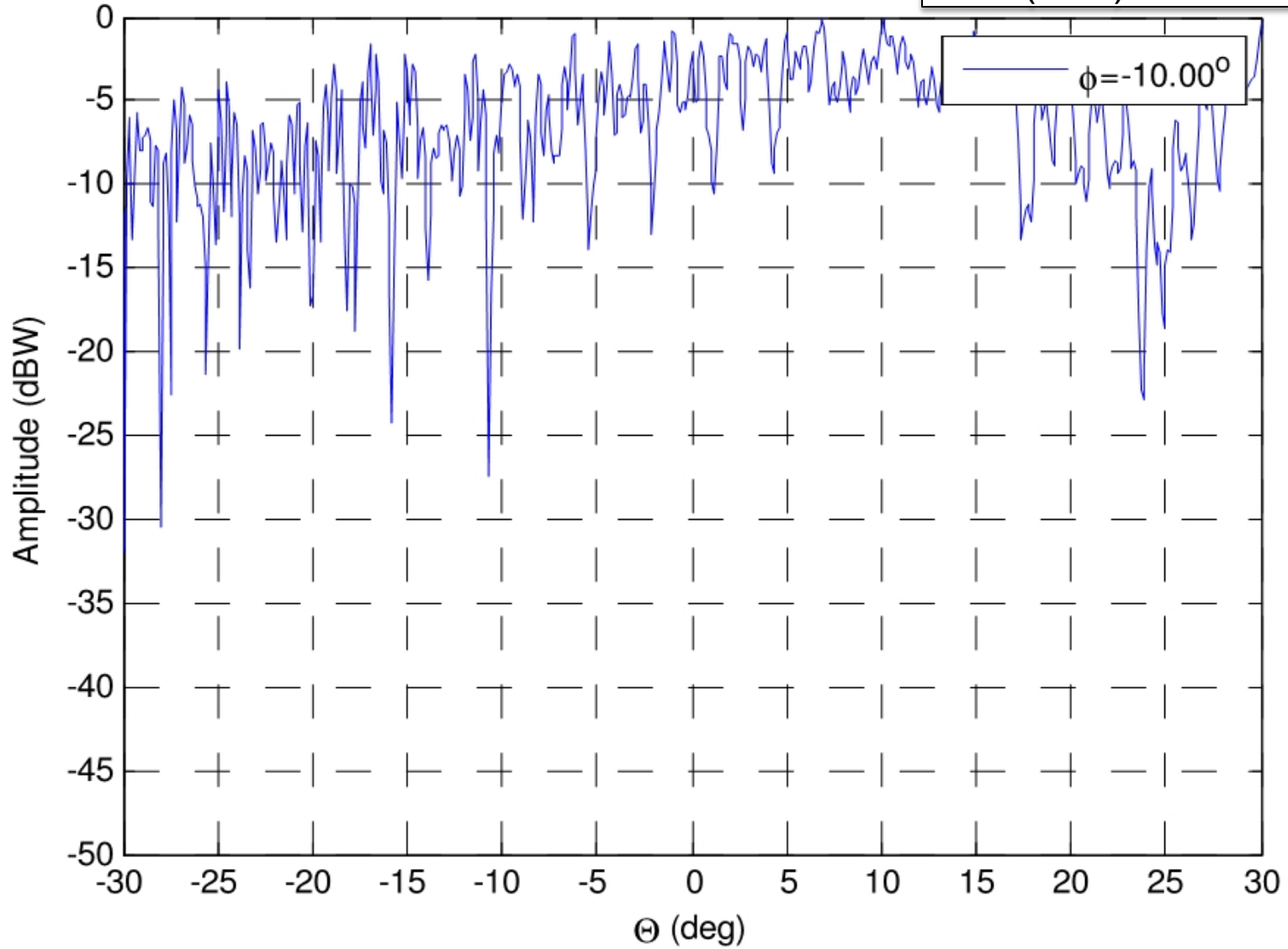
Normalized pattern cuts - farfield

Input file: tx-17.3-lhcp--20.cut, Peak: -2.07 dBW, EIRP (max) = 60.2 dBW



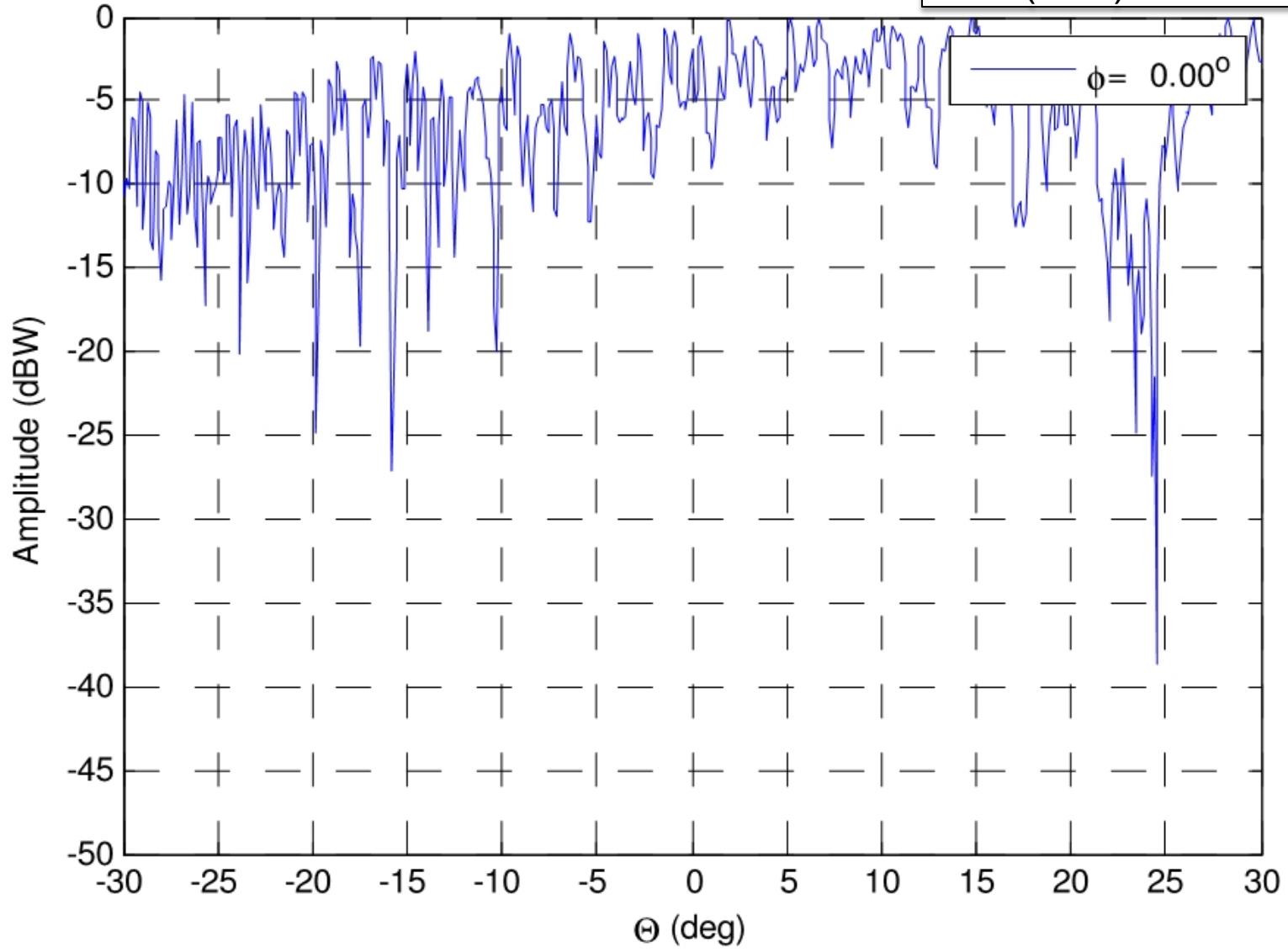
Normalized pattern cuts - farfield

Input file: tx-17.3-lhcp--10.cut, Peak: -2.74 dBW, EIRP (max) = 60.2 dBW



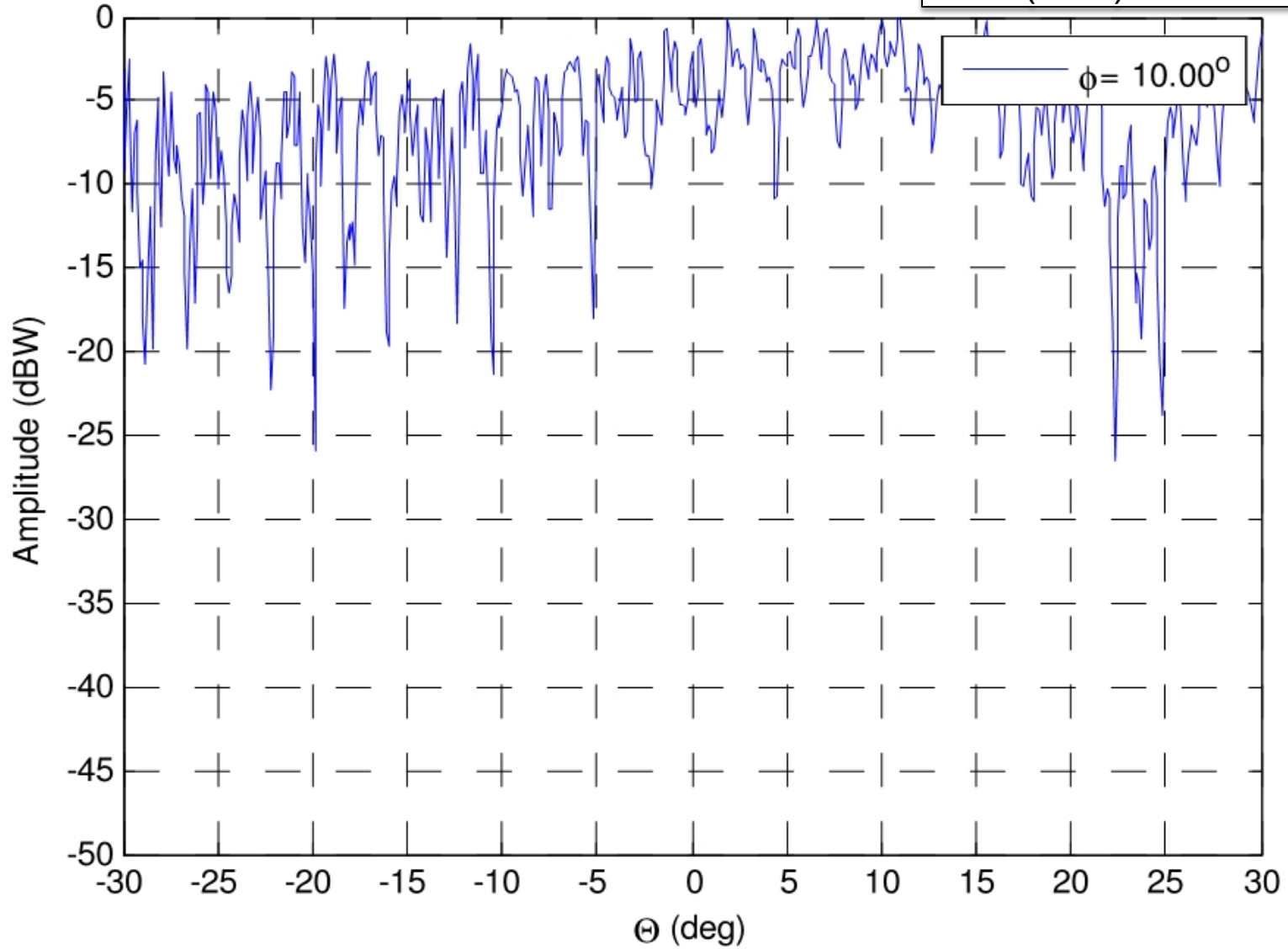
Normalized pattern cuts - farfield

Input file: tx-17.3-lhcp-0.cut, Peak: -2.92 dBW, EIRP (max) = 60.2 dBW



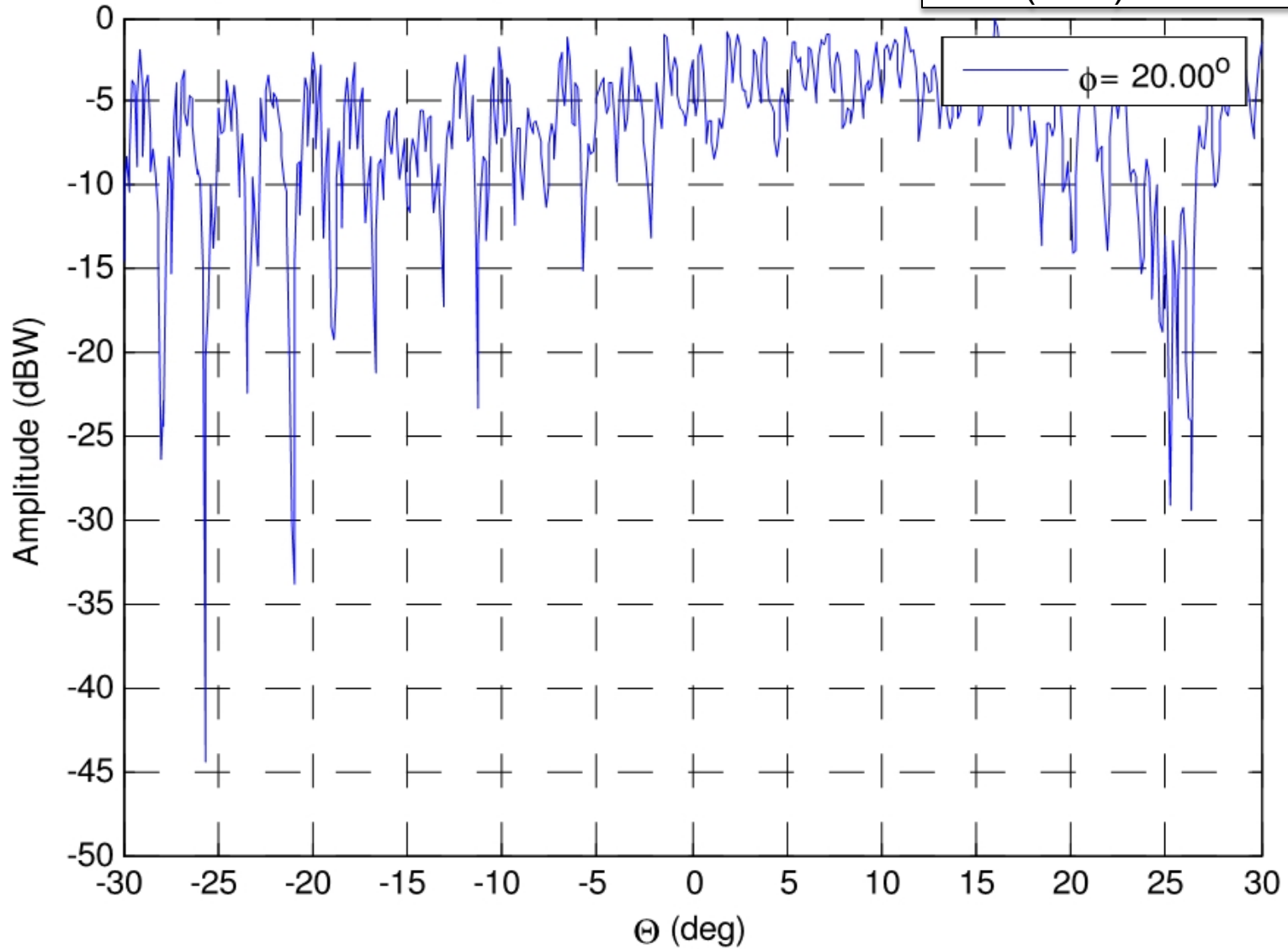
Normalized pattern cuts - farfield

Input file: tx-17.3-lhcp-10.cut, Peak: -2.75 dBW, EIRP (max) = 60.2 dBW



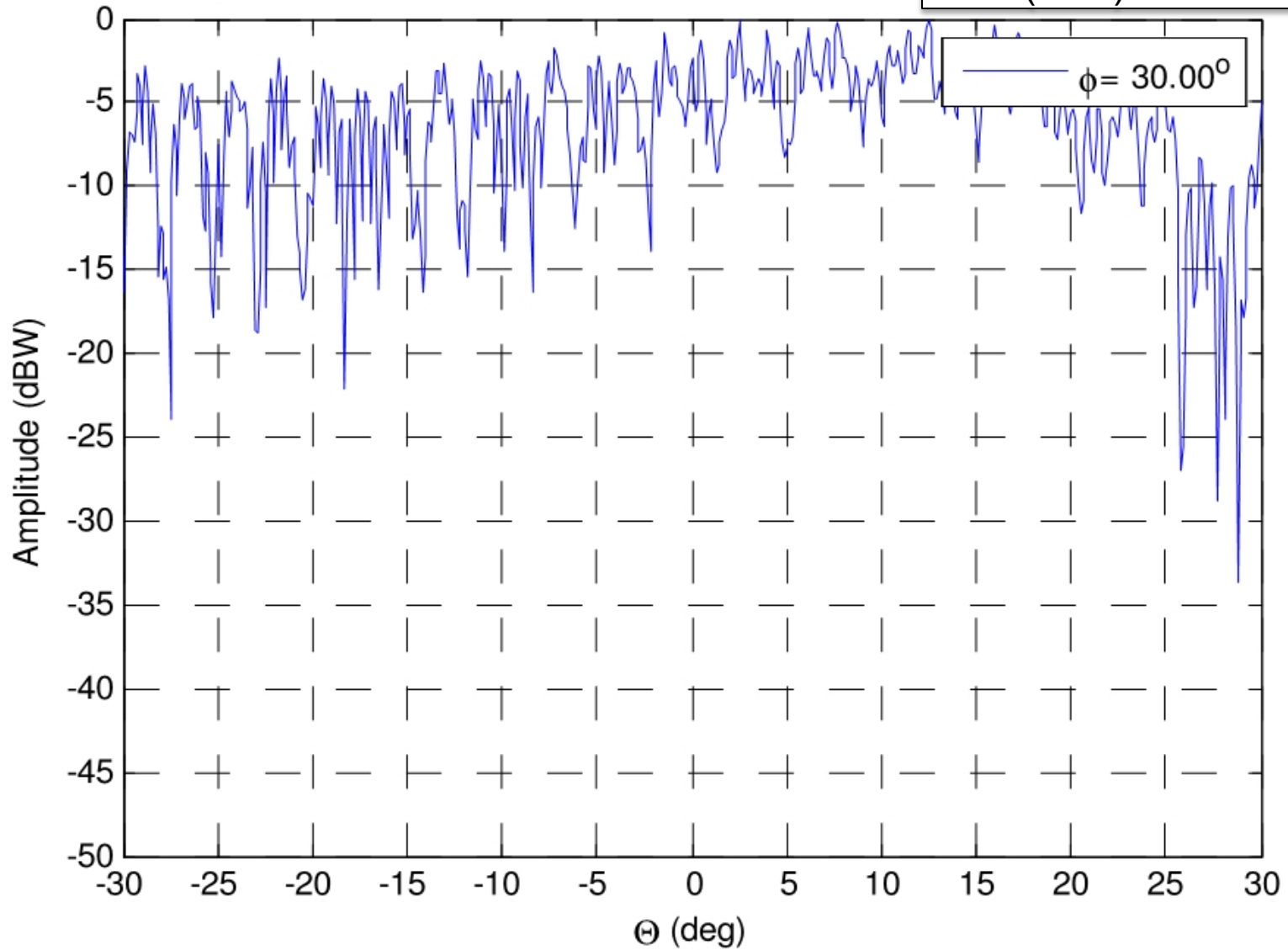
Normalized pattern cuts - farfield

Input file: tx-17.3-lhcp-20.cut, Peak: -2.32 dBW, EIRP (max) = 60.2 dBW



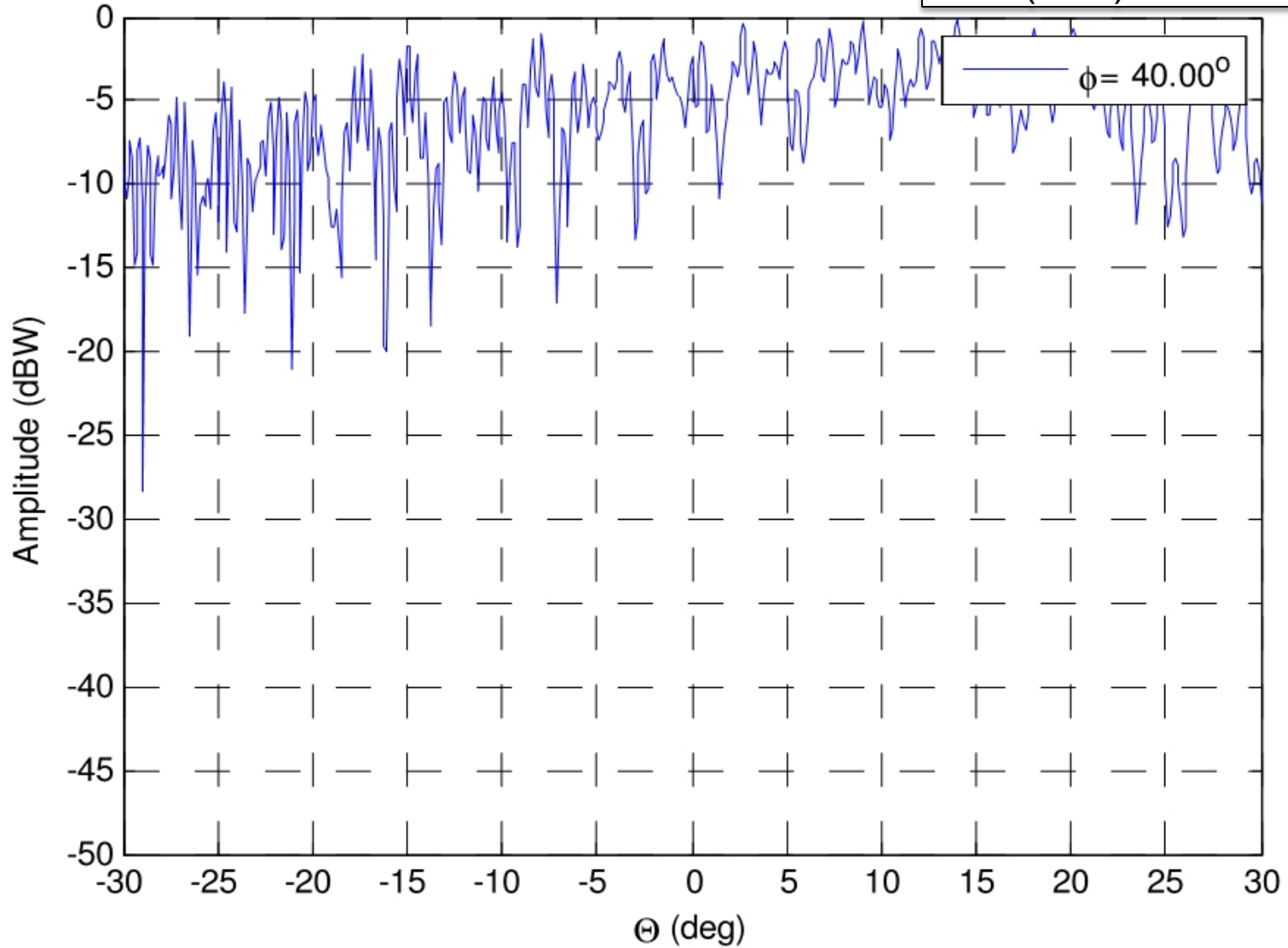
Normalized pattern cuts - farfield

Input file: tx-17.3-lhcp-30.cut, Peak: -2.48 dBW, EIRP (max) = 60.2 dBW



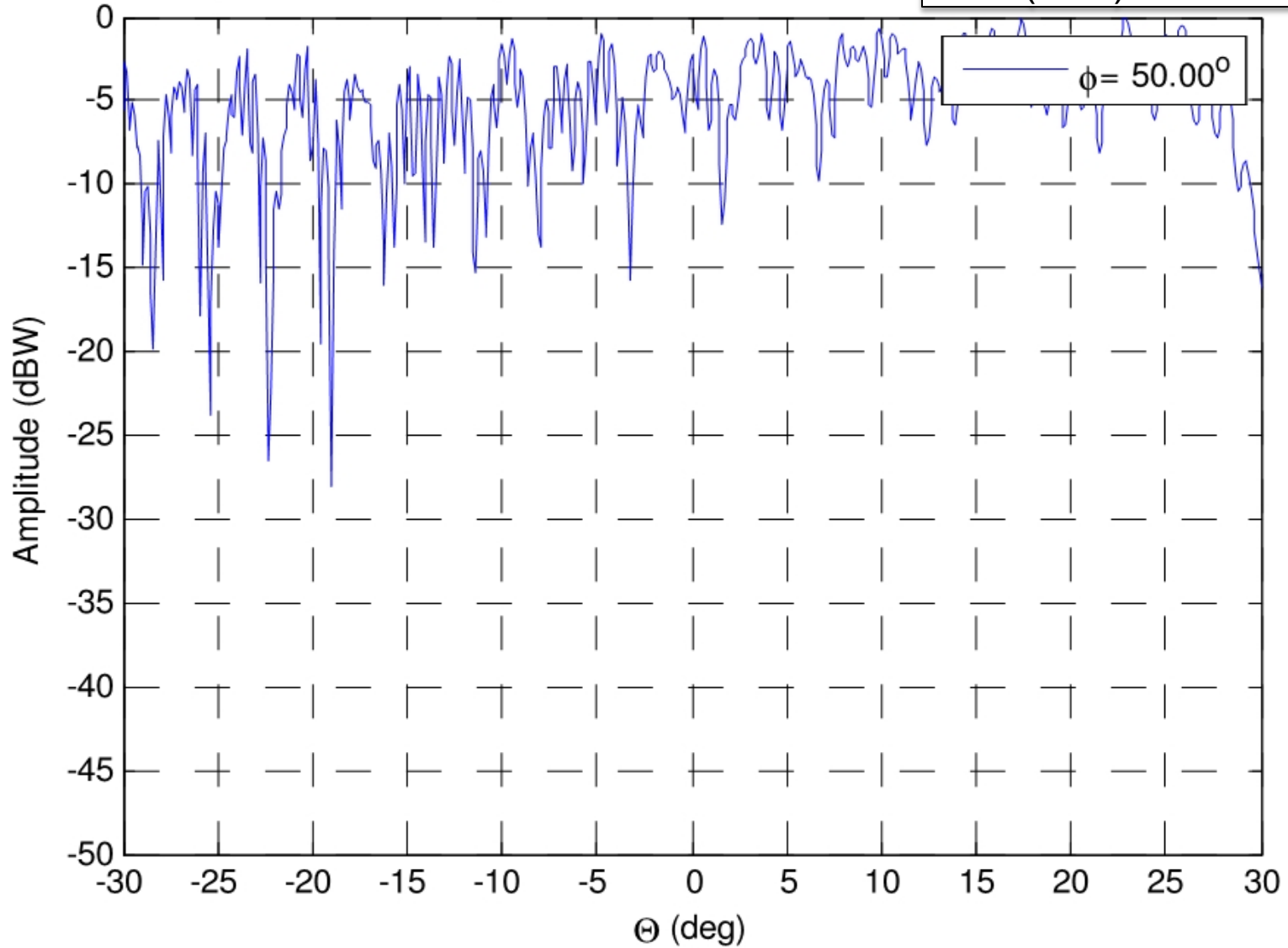
Normalized pattern cuts - farfield

Input file: tx-17.3-lhcp-40.cut, Peak: -2.41 dBW, EIRP (max) = 60.2 dBW



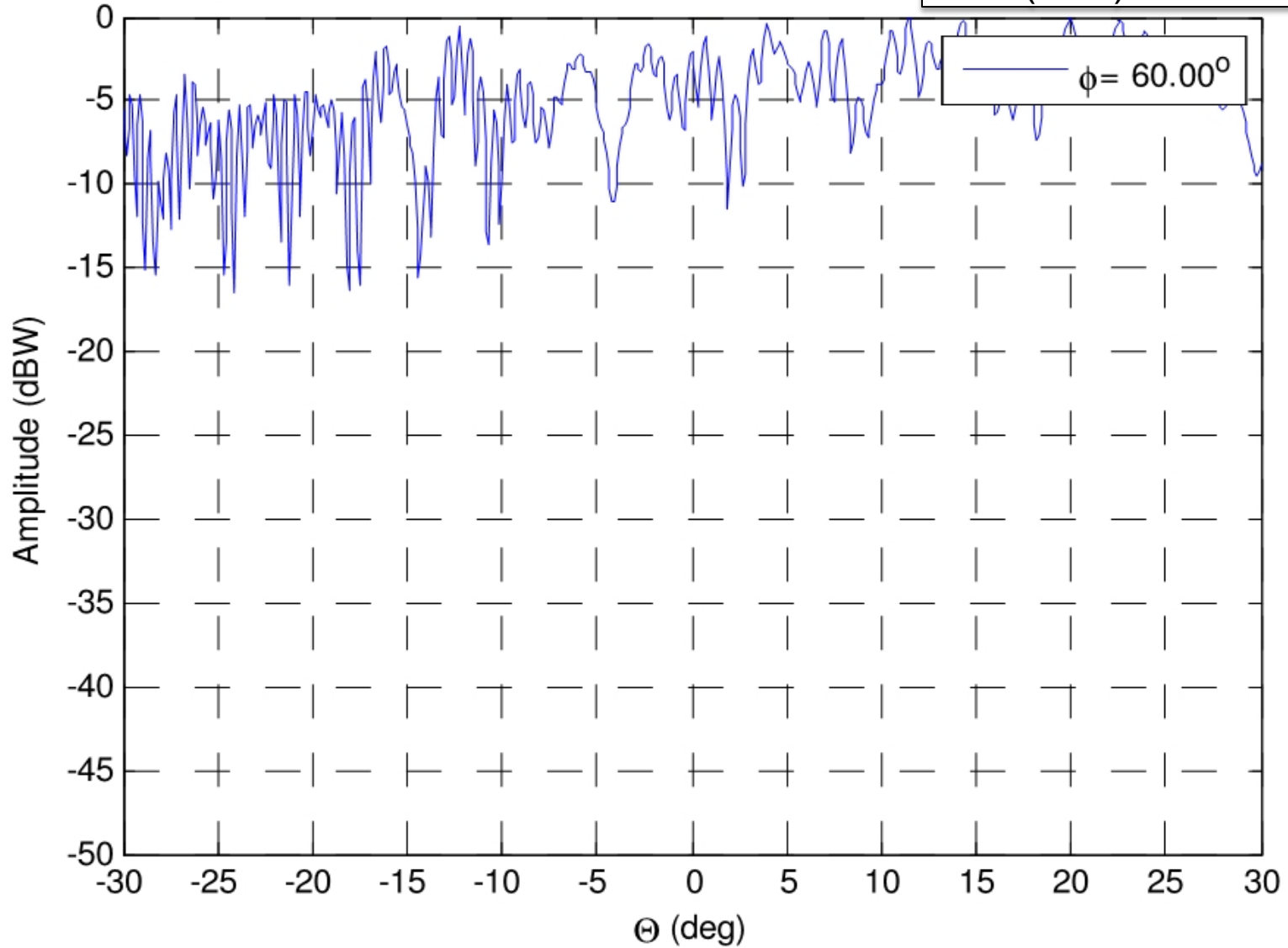
Normalized pattern cuts - farfield

Input file: tx-17.3-lhcp-50.cut, Peak: -2.55 dBW, EIRP (max) = 60.2 dBW



Normalized pattern cuts - farfield

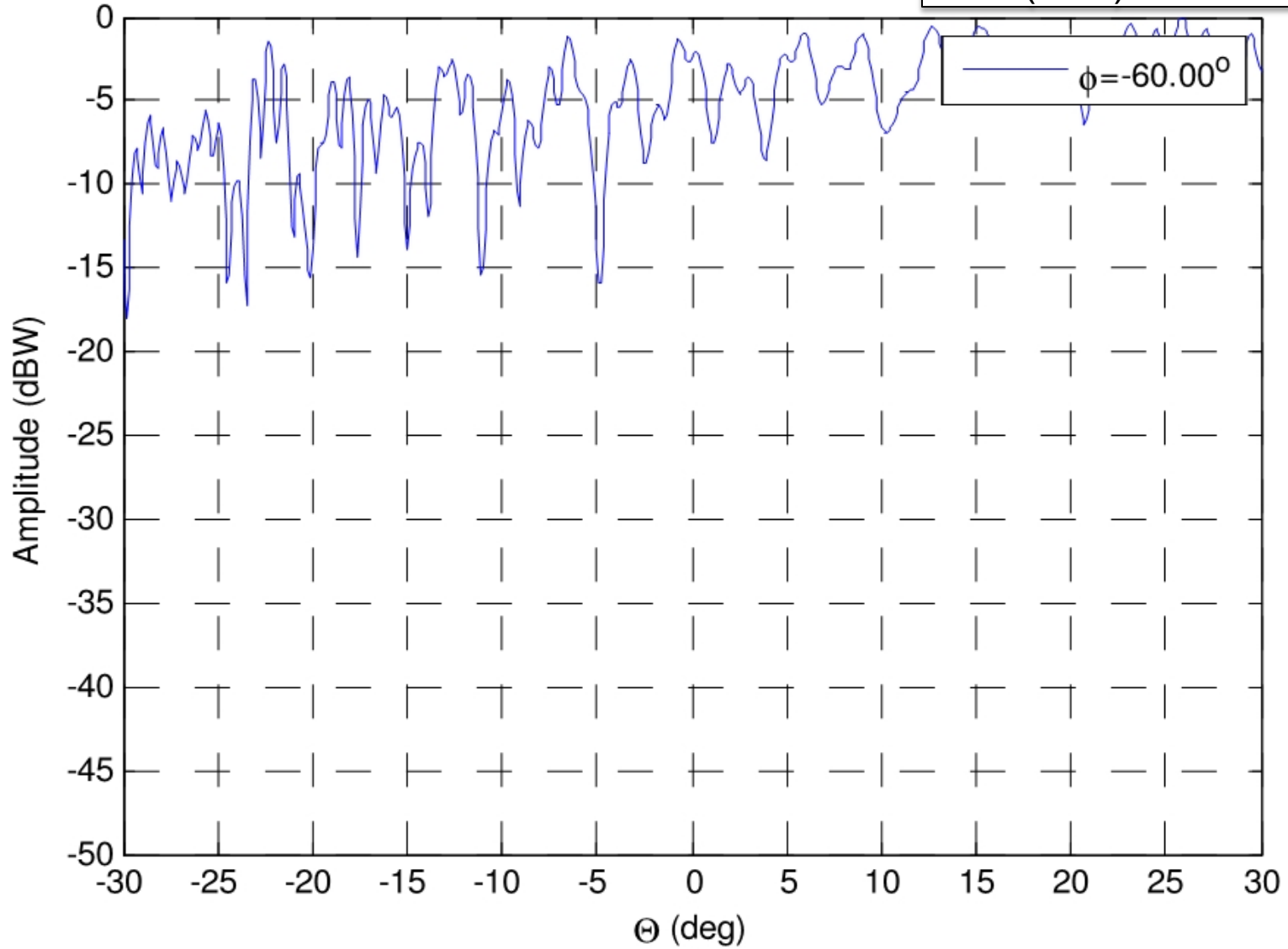
Input file: tx-17.3-lhcp-60.cut, Peak: -2.75 dBW, EIRP (max) = 60.2 dBW



RHCP at 17.5 GHz

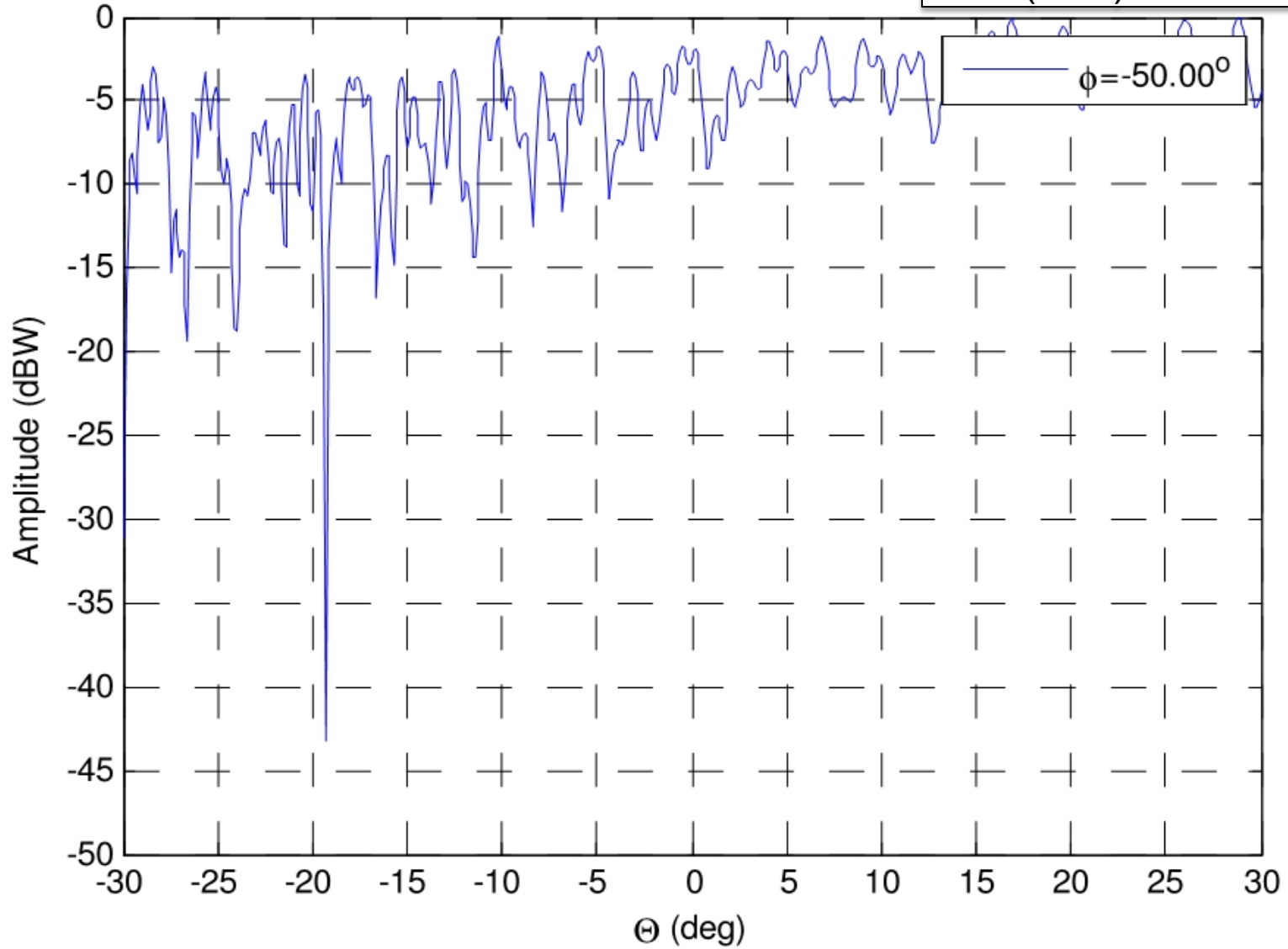
Normalized pattern cuts - farfield

Input file: tx-17.5-rhcp--60.cut, Peak: -2.48 dBW, EIRP (max) = 60.2 dBW



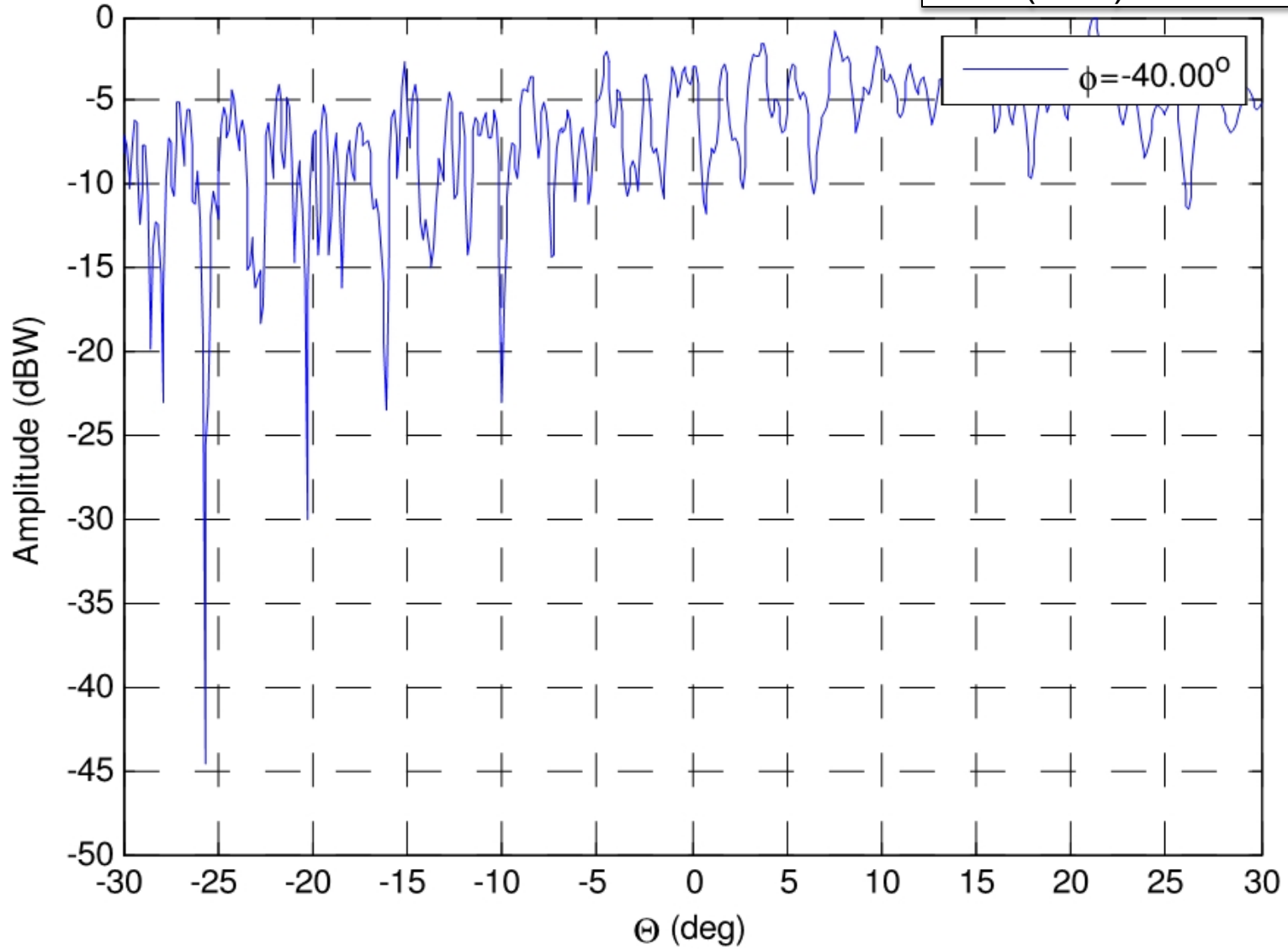
Normalized pattern cuts - farfield

Input file: tx-17.5-rhcp--50.cut, Peak: -2.48 dBW, EIRP (max) = 60.2 dBW



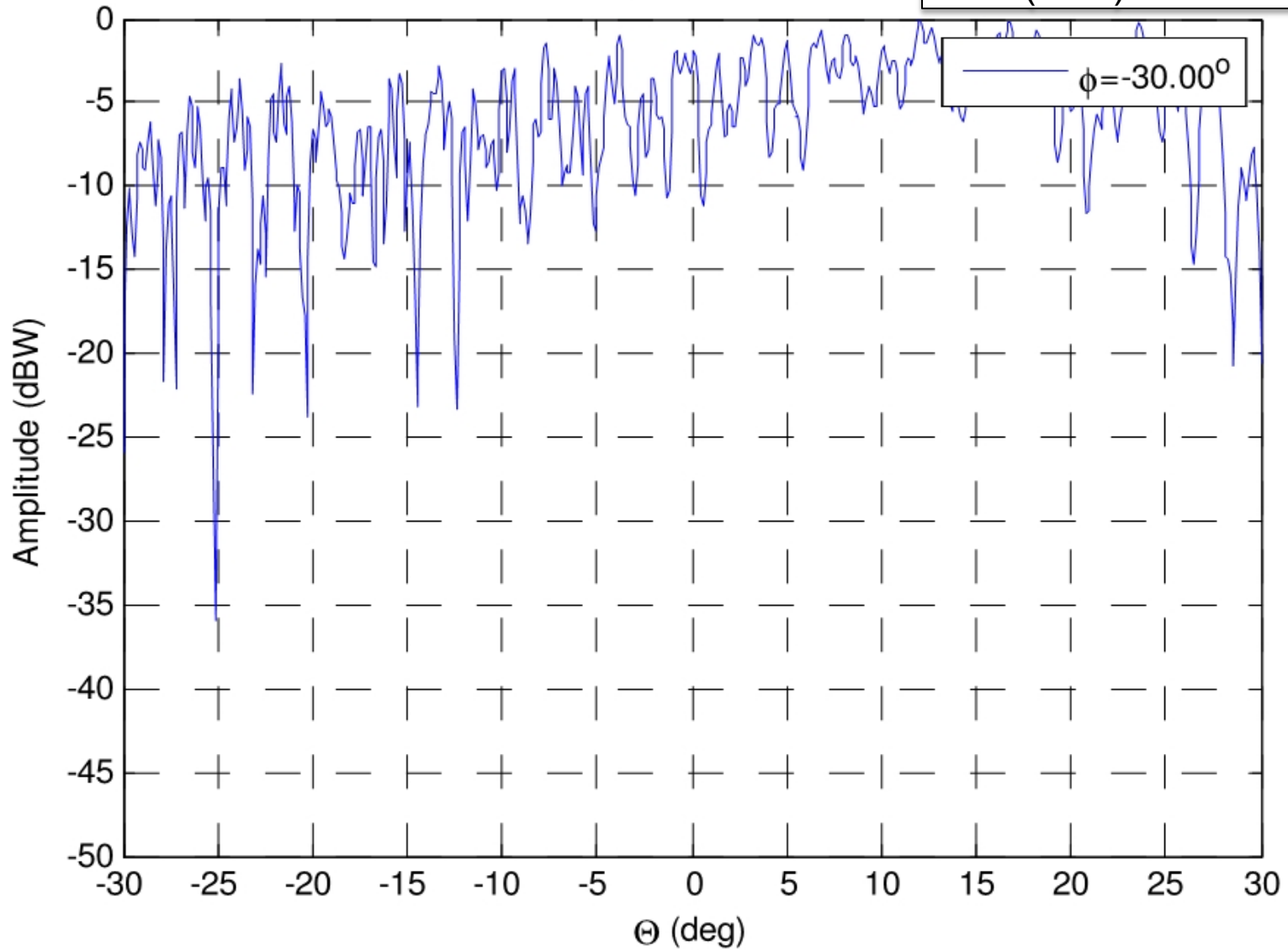
Normalized pattern cuts - farfield

Input file: tx-17.5-rhcp--40.cut, Peak: -1.42 dBW, EIRP (max) = 60.2 dBW



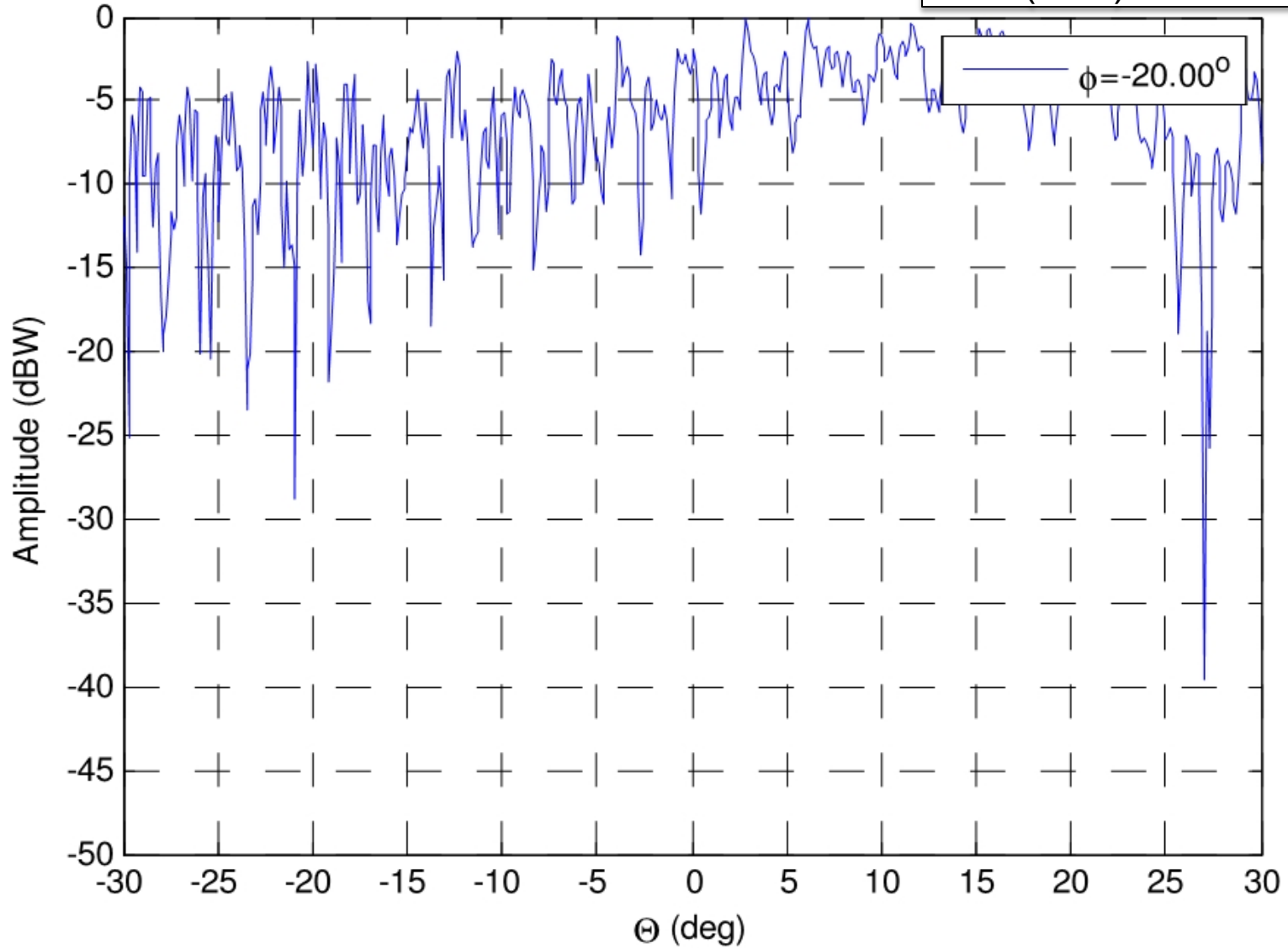
Normalized pattern cuts - farfield

Input file: tx-17.5-rhcp--30.cut, Peak: -2.41 dBW, EIRP (max) = 60.2 dBW



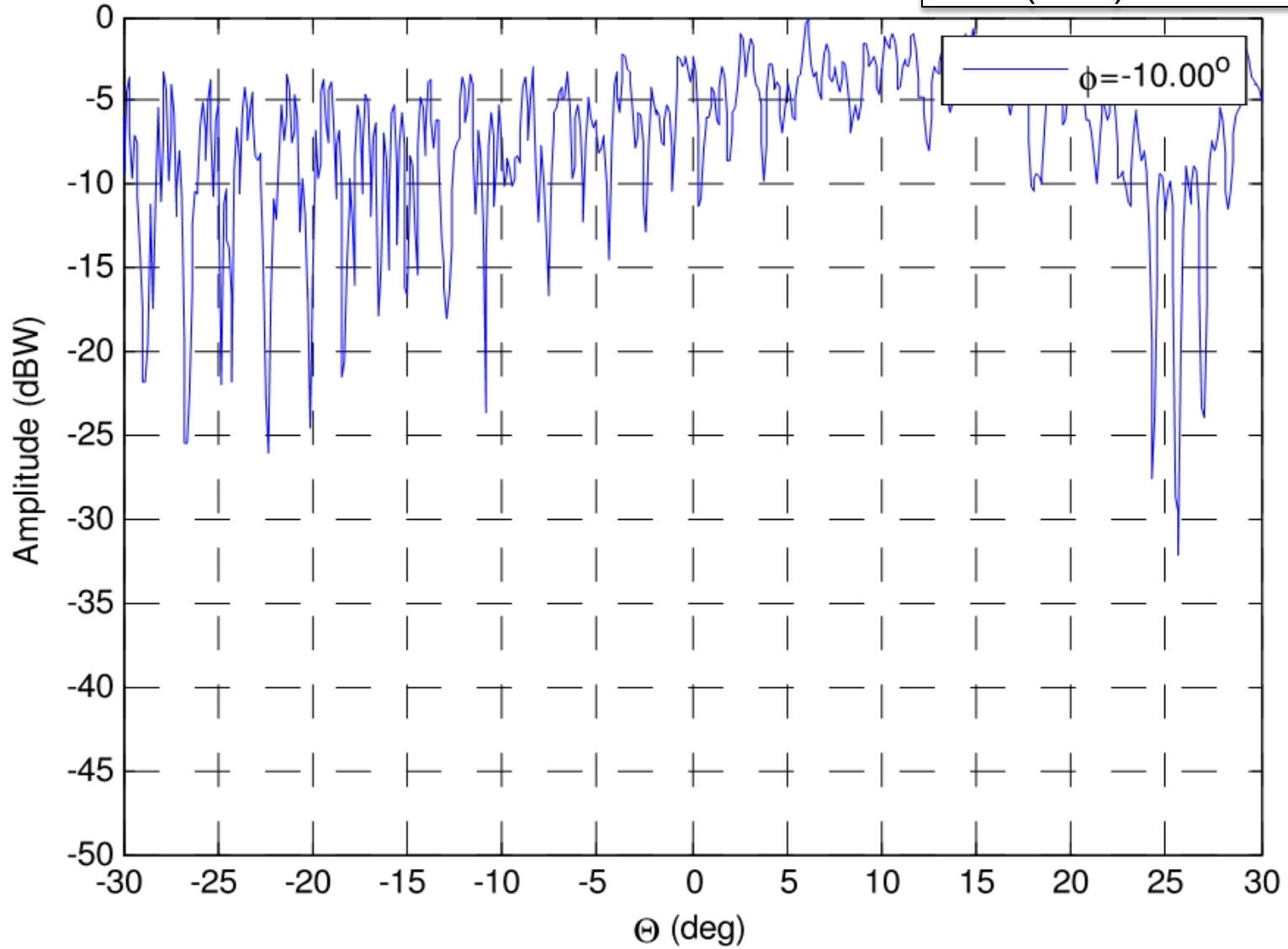
Normalized pattern cuts - farfield

Input file: tx-17.5-rhcp--20.cut, Peak: -2.31 dBW, EIRP (max) = 60.2 dBW



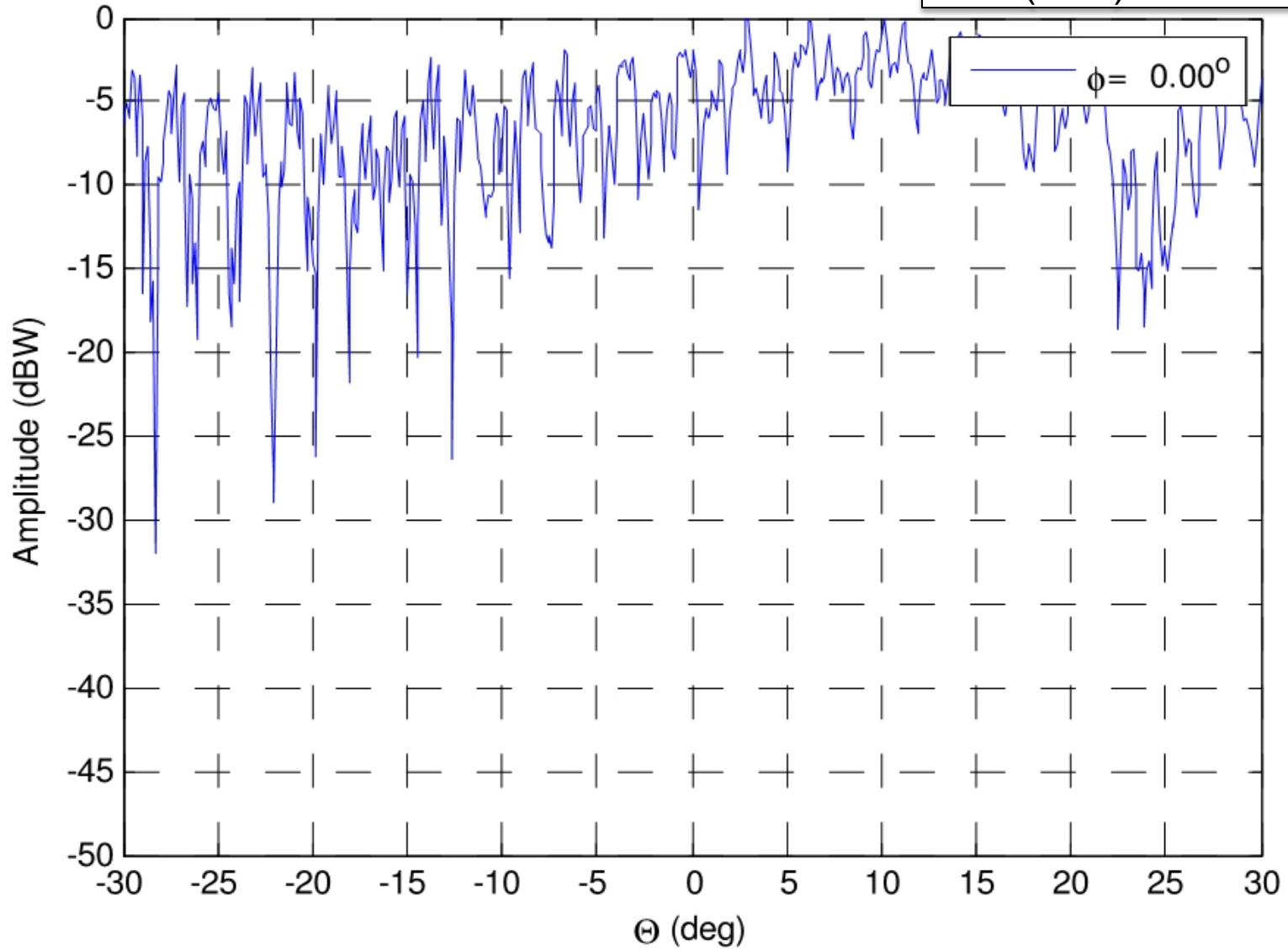
Normalized pattern cuts - farfield

Input file: tx-17.5-rhcp--10.cut, Peak: -1.96 dBW, EIRP (max) = 60.2 dBW



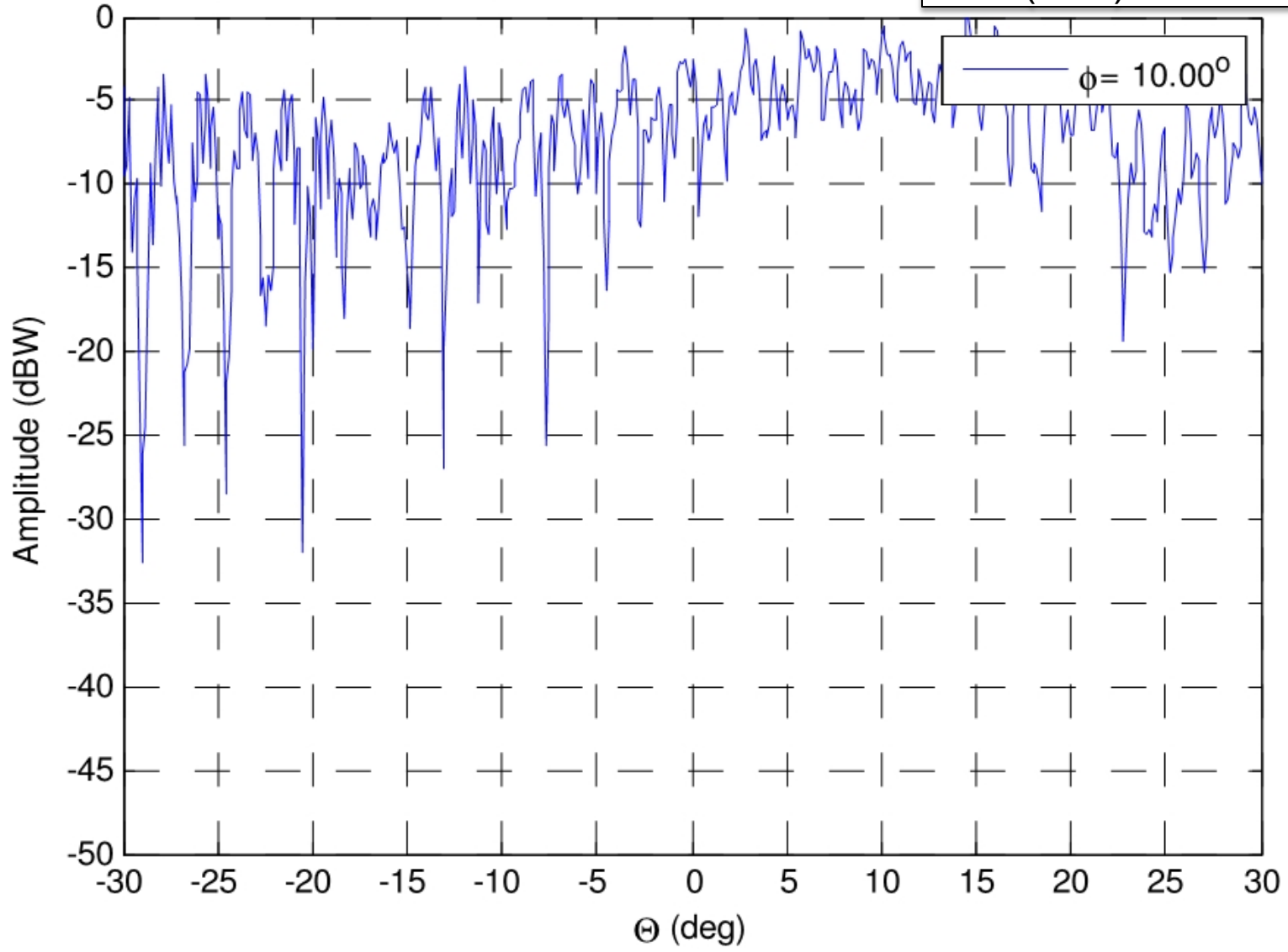
Normalized pattern cuts - farfield

Input file: tx-17.5-rhcp-0.cut, Peak: -2.35 dBW, EIRP (max) = 60.2 dBW



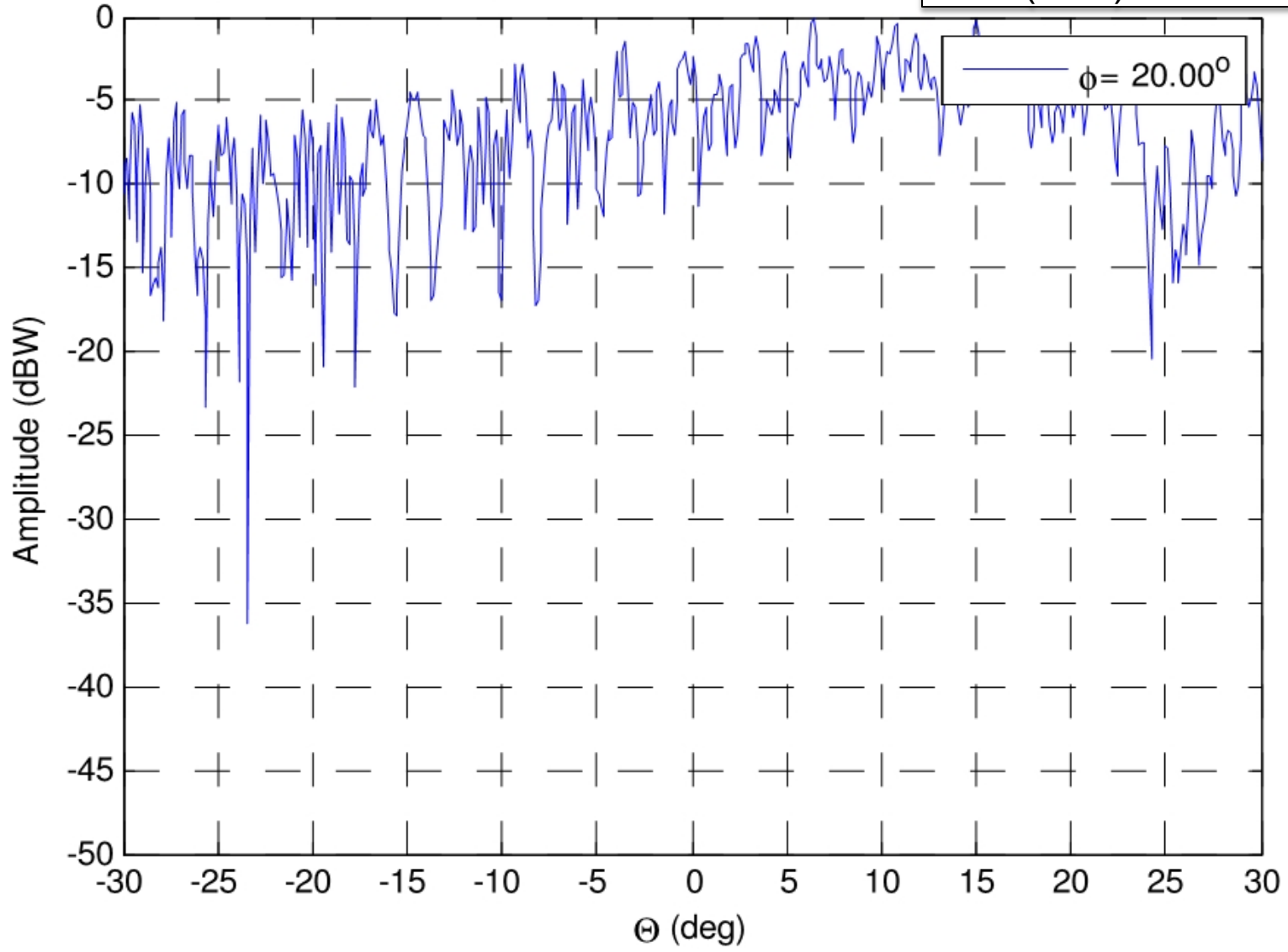
Normalized pattern cuts - farfield

Input file: tx-17.5-rhcp-10.cut, Peak: -1.73 dBW, EIRP (max) = 60.2 dBW



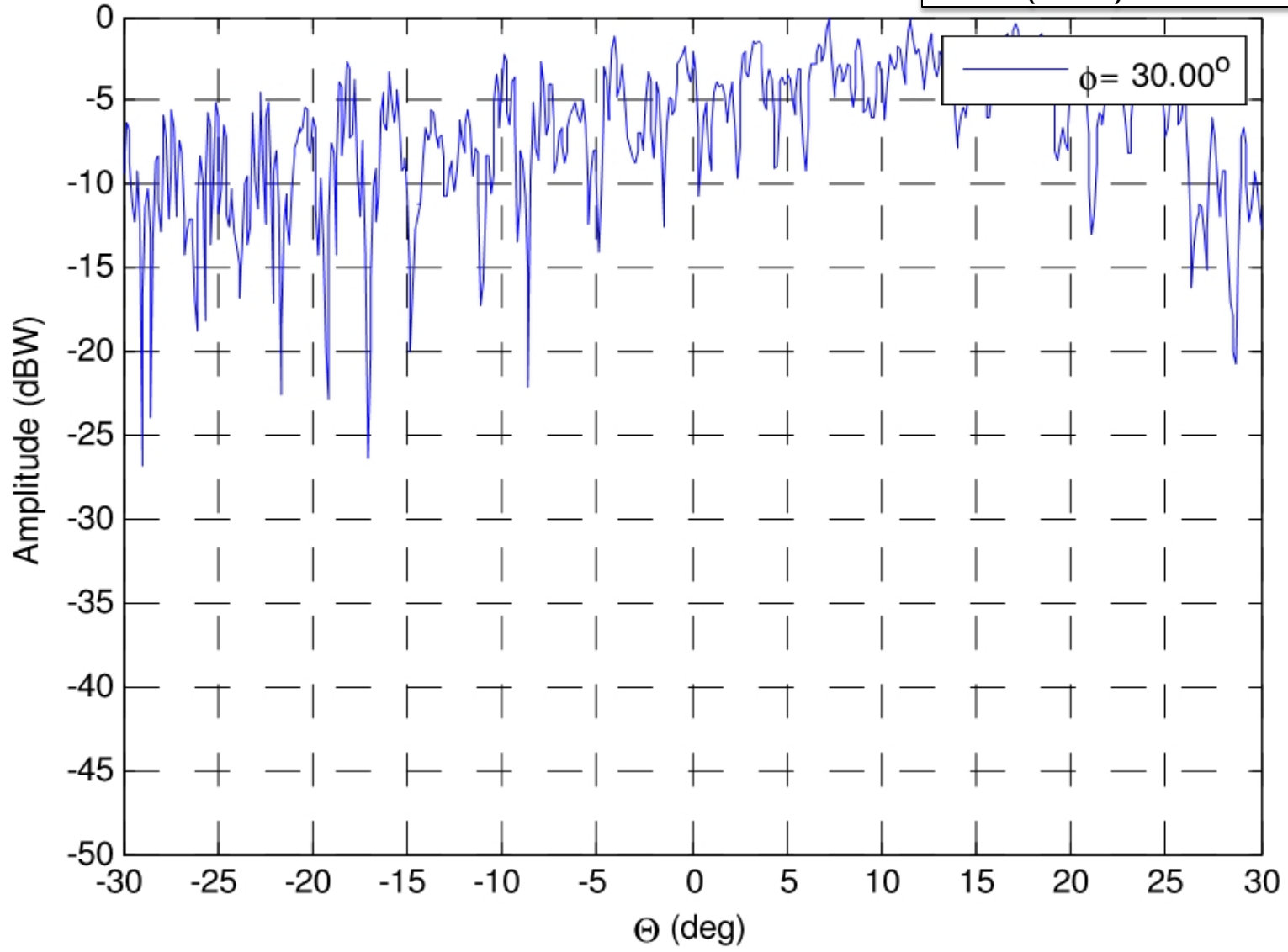
Normalized pattern cuts - farfield

Input file: tx-17.5-rhcp-20.cut, Peak: -1.95 dBW, EIRP (max) = 60.2 dBW



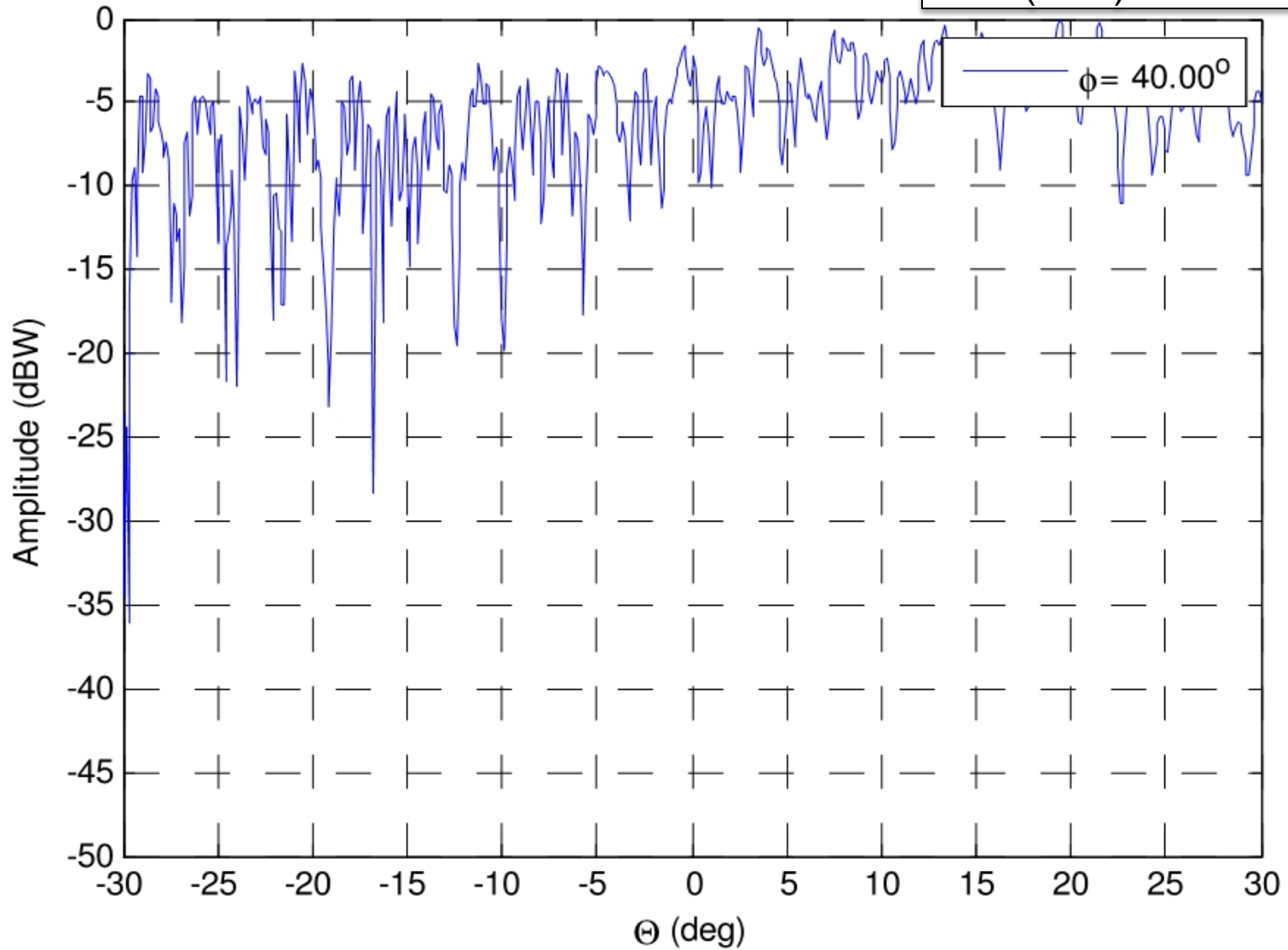
Normalized pattern cuts - farfield

Input file: tx-17.5-rhcp-30.cut, Peak: -2.10 dBW, EIRP (max) = 60.2 dBW



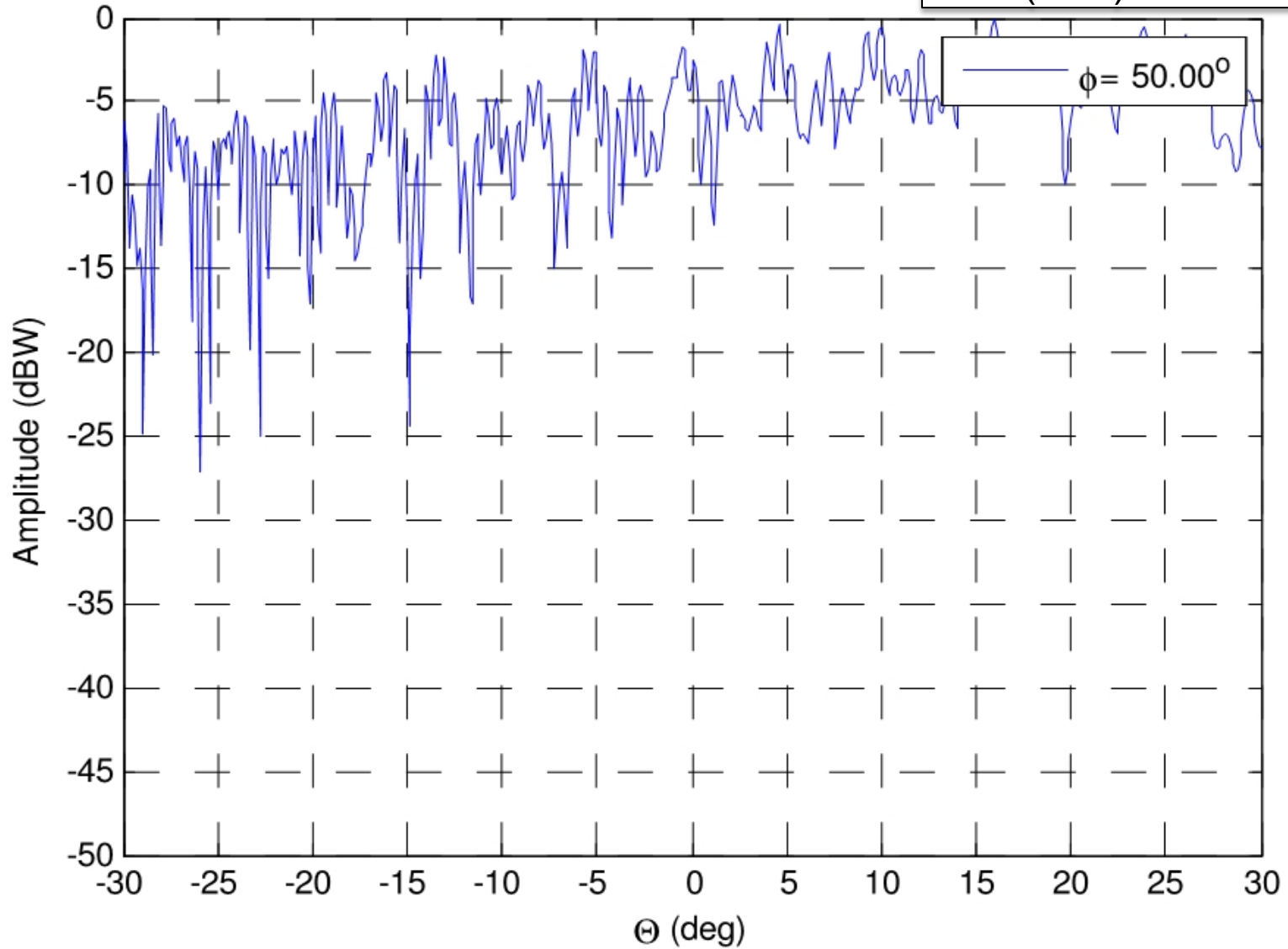
Normalized pattern cuts - farfield

Input file: tx-17.5-rhcp-40.cut, Peak: -2.05 dBW, EIRP (max) = 60.2 dBW



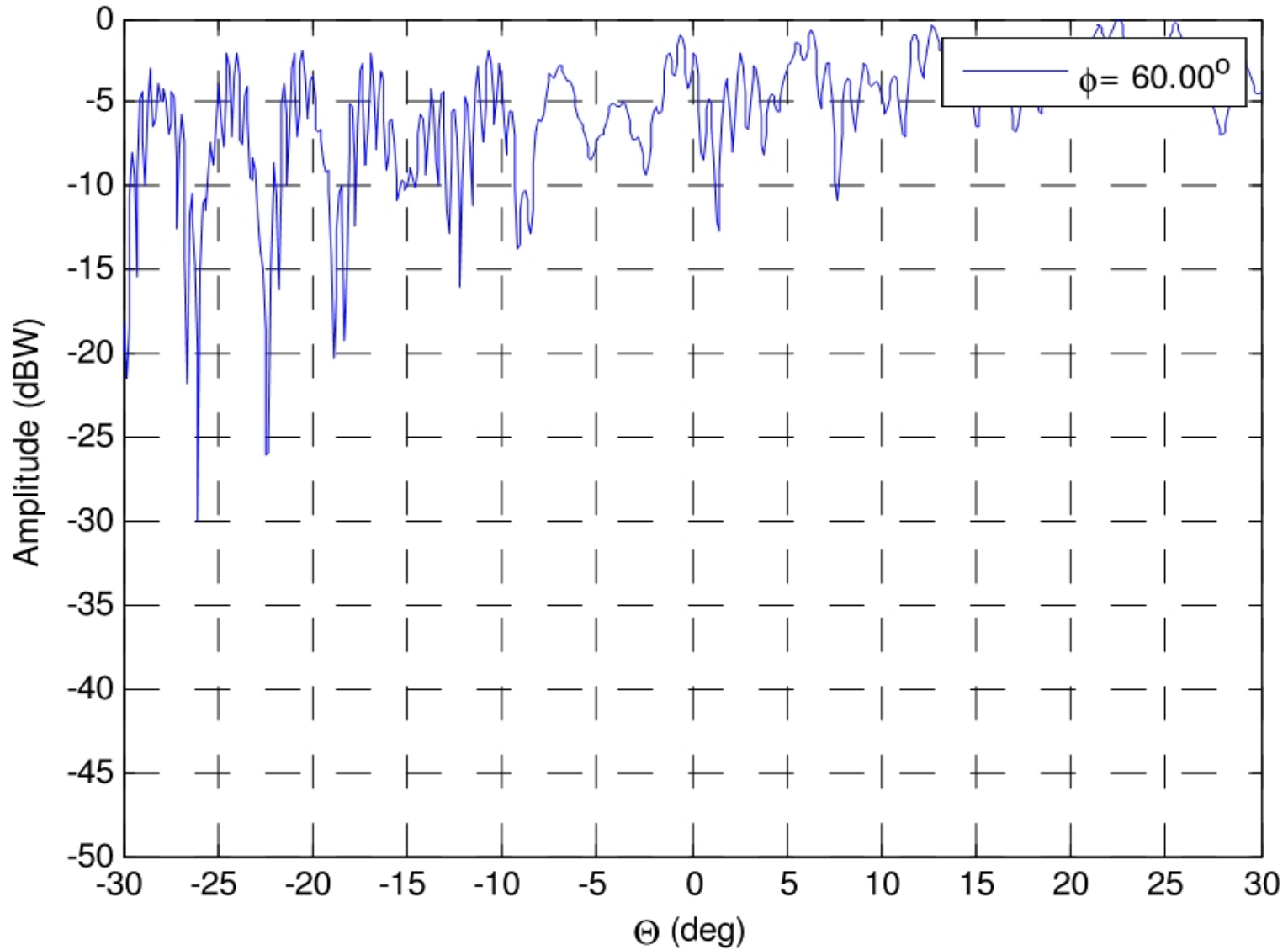
Normalized pattern cuts - farfield

Input file: tx-17.5-rhcp-50.cut, Peak: -1.74 dBW, EIRP (max) = 60.2 dBW



Normalized pattern cuts - farfield

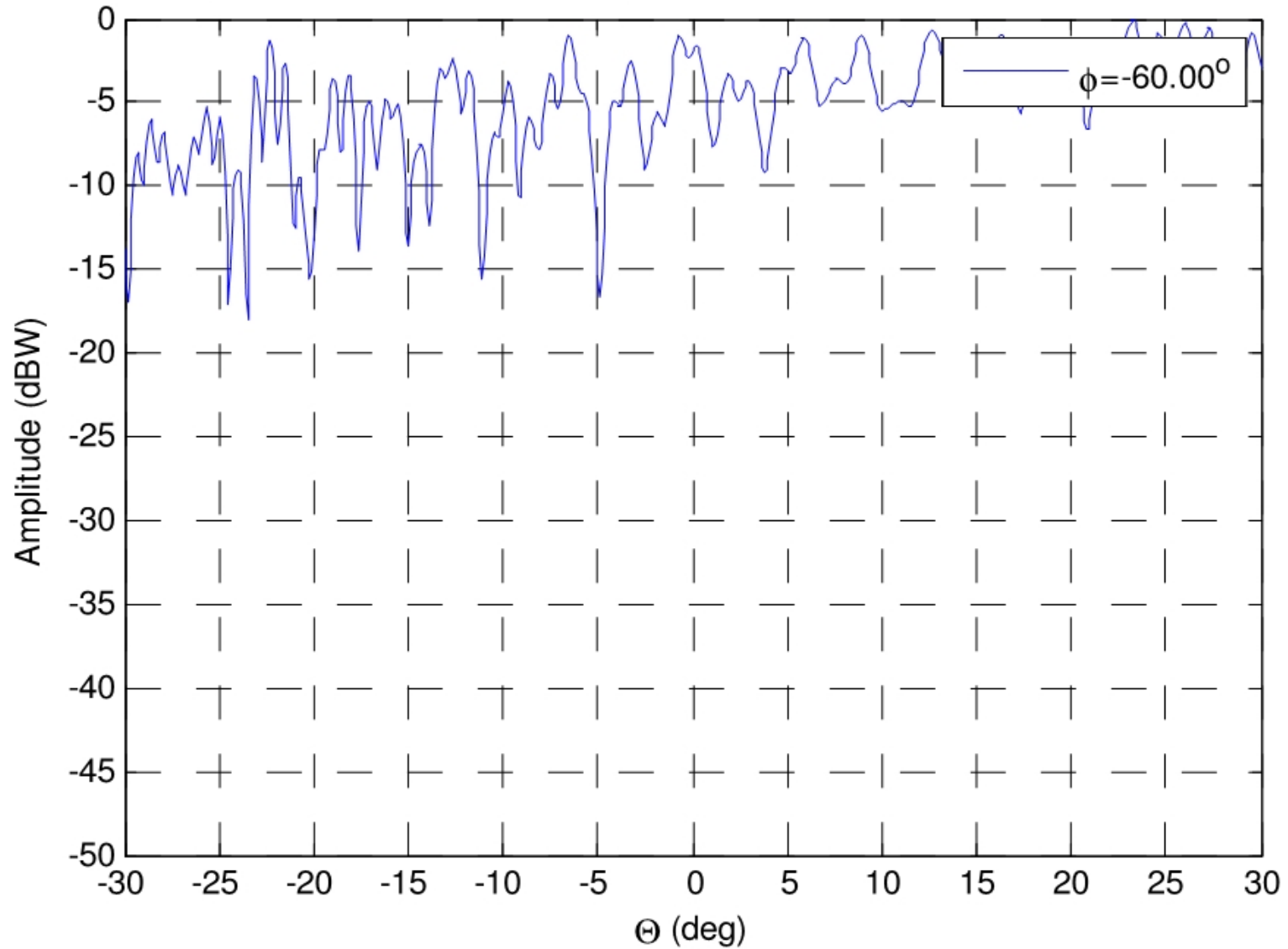
Input file: tx-17.5-rhcp-60.cut, Peak: -2.23 dBW, Date: 14-Oct-2011



LHCP at 17.5 GHz

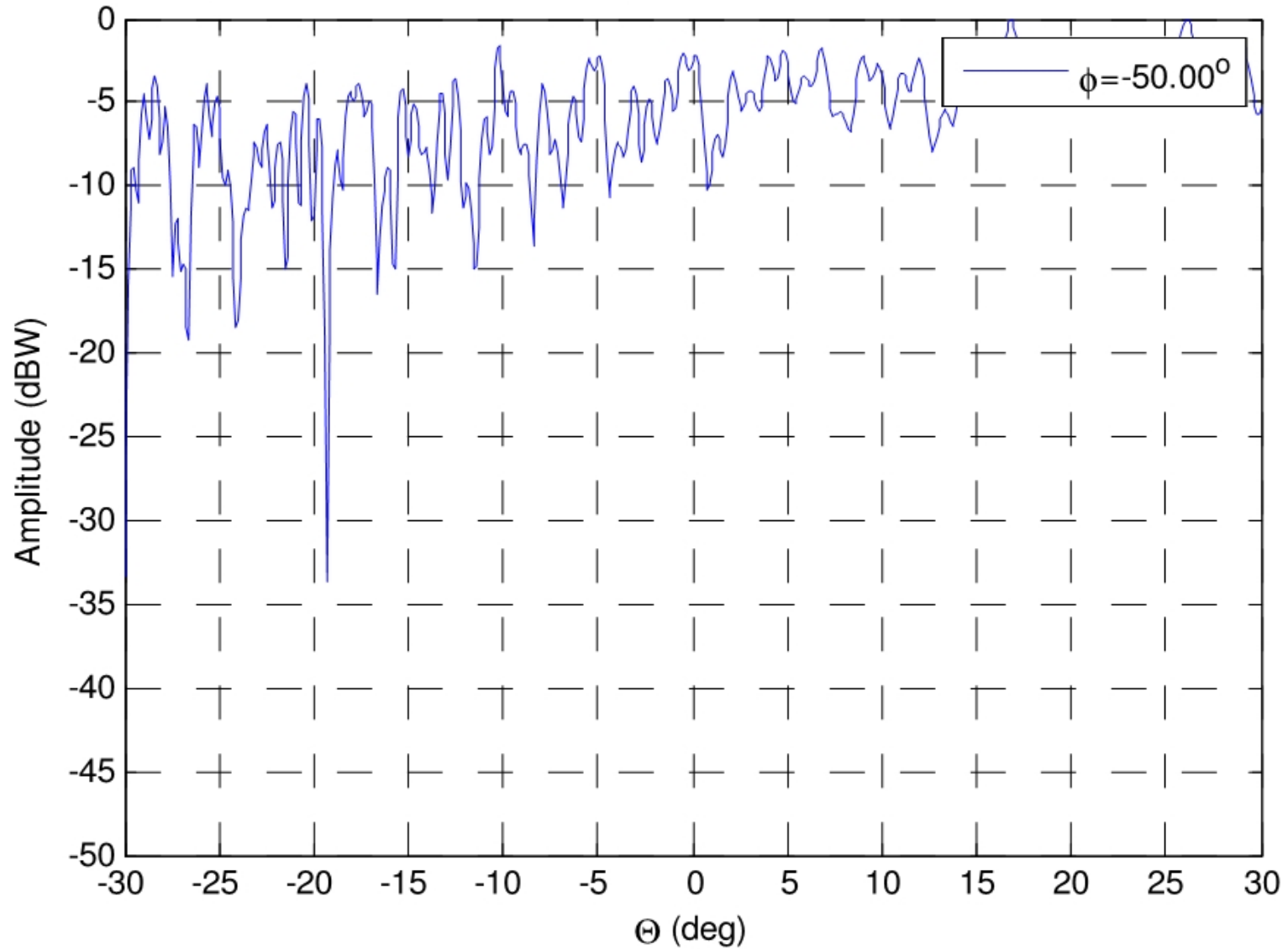
Normalized pattern cuts - farfield

Input file: tx-17.5-lhcp--60.cut, Peak: -2.56 dBW, Date: 14-Oct-2011



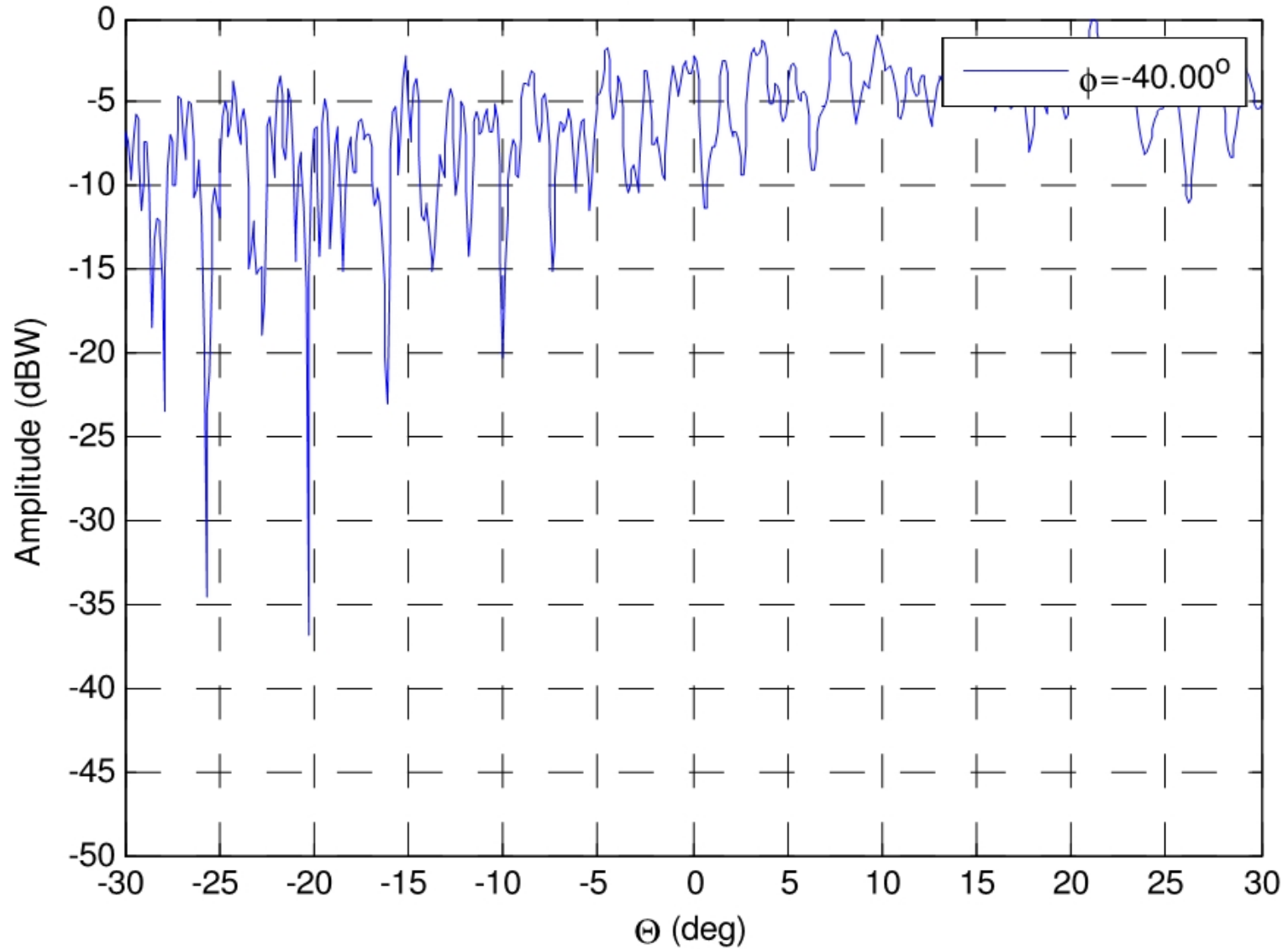
Normalized pattern cuts - farfield

Input file: tx-17.5-lhcp--50.cut, Peak: -2.01 dBW, Date: 14-Oct-2011



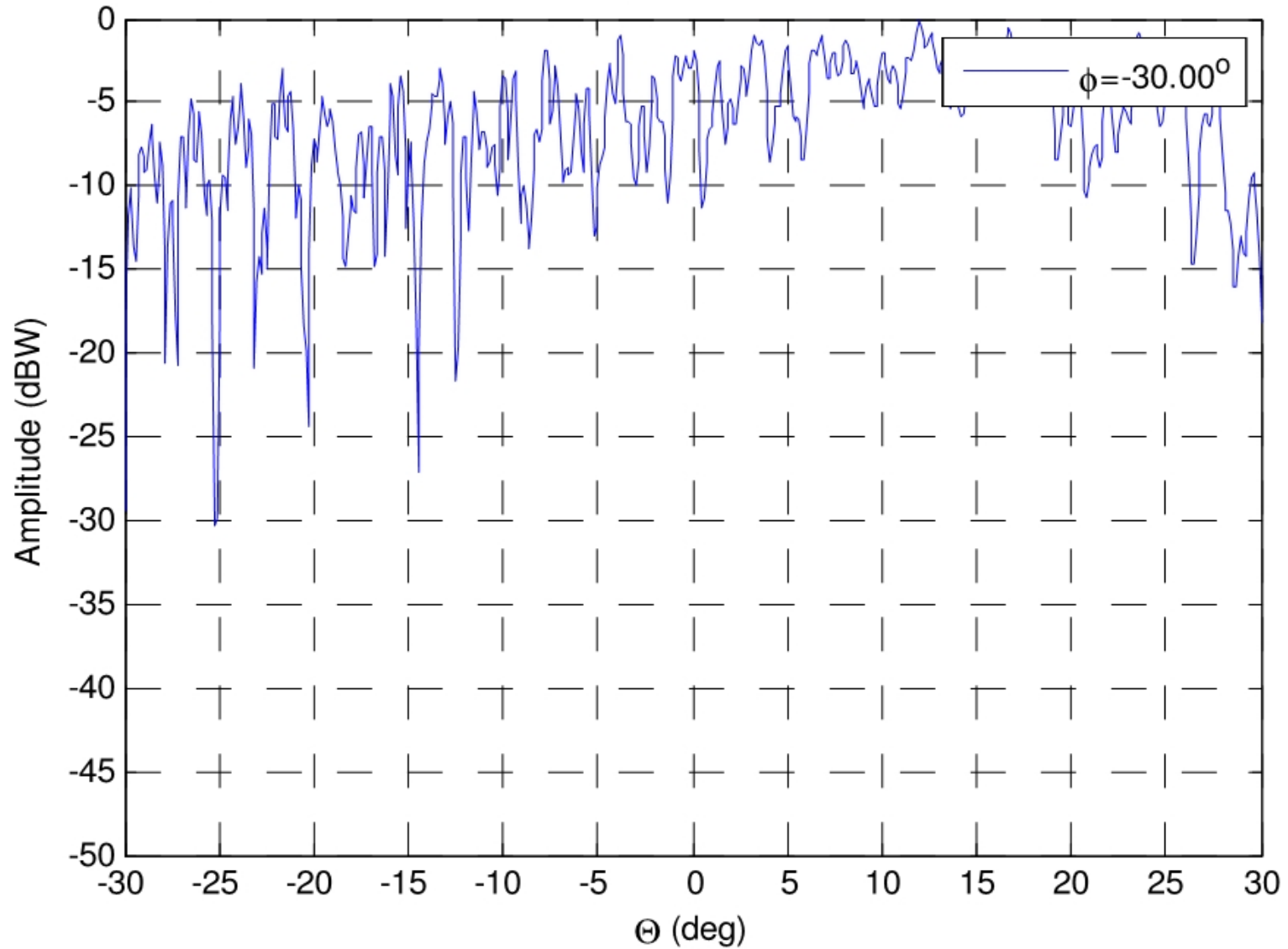
Normalized pattern cuts - farfield

Input file: tx-17.5-lhcp--40.cut, Peak: -1.88 dBW, Date: 14-Oct-2011



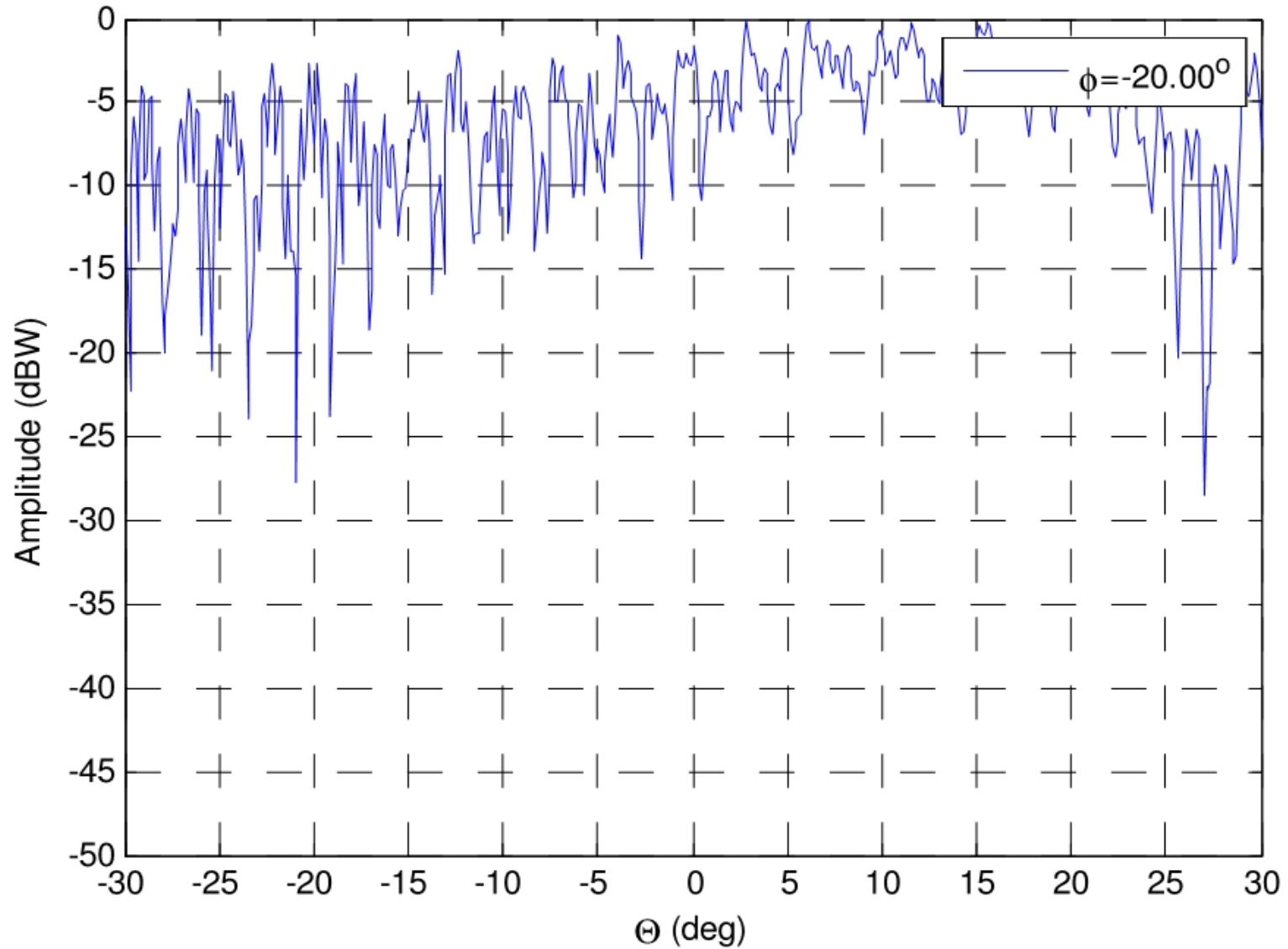
Normalized pattern cuts - farfield

Input file: tx-17.5-lhcp--30.cut, Peak: -2.25 dBW, Date: 14-Oct-2011



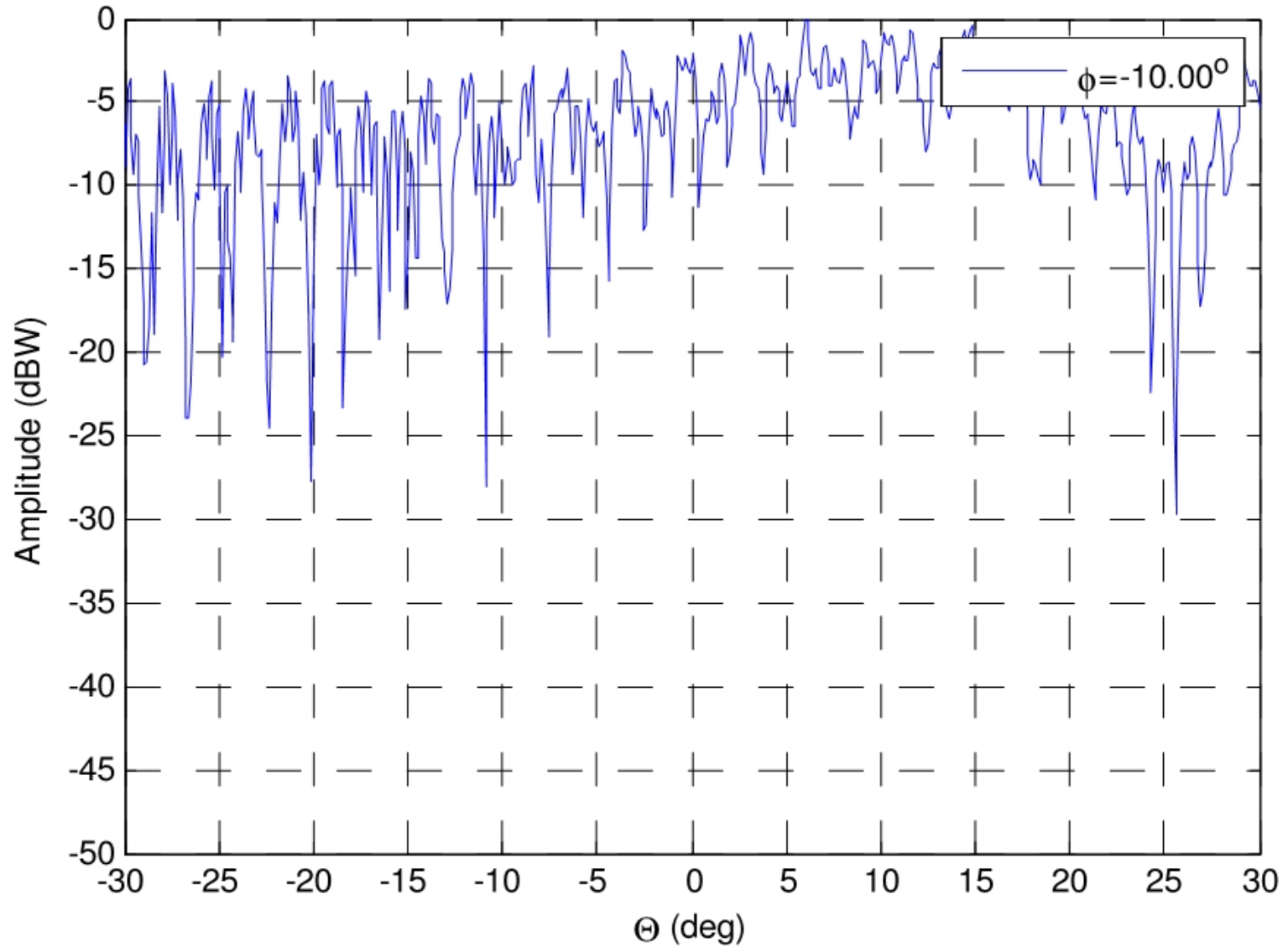
Normalized pattern cuts - farfield

Input file: tx-17.5-lhcp--20.cut, Peak: -2.47 dBW, Date: 14-Oct-2011



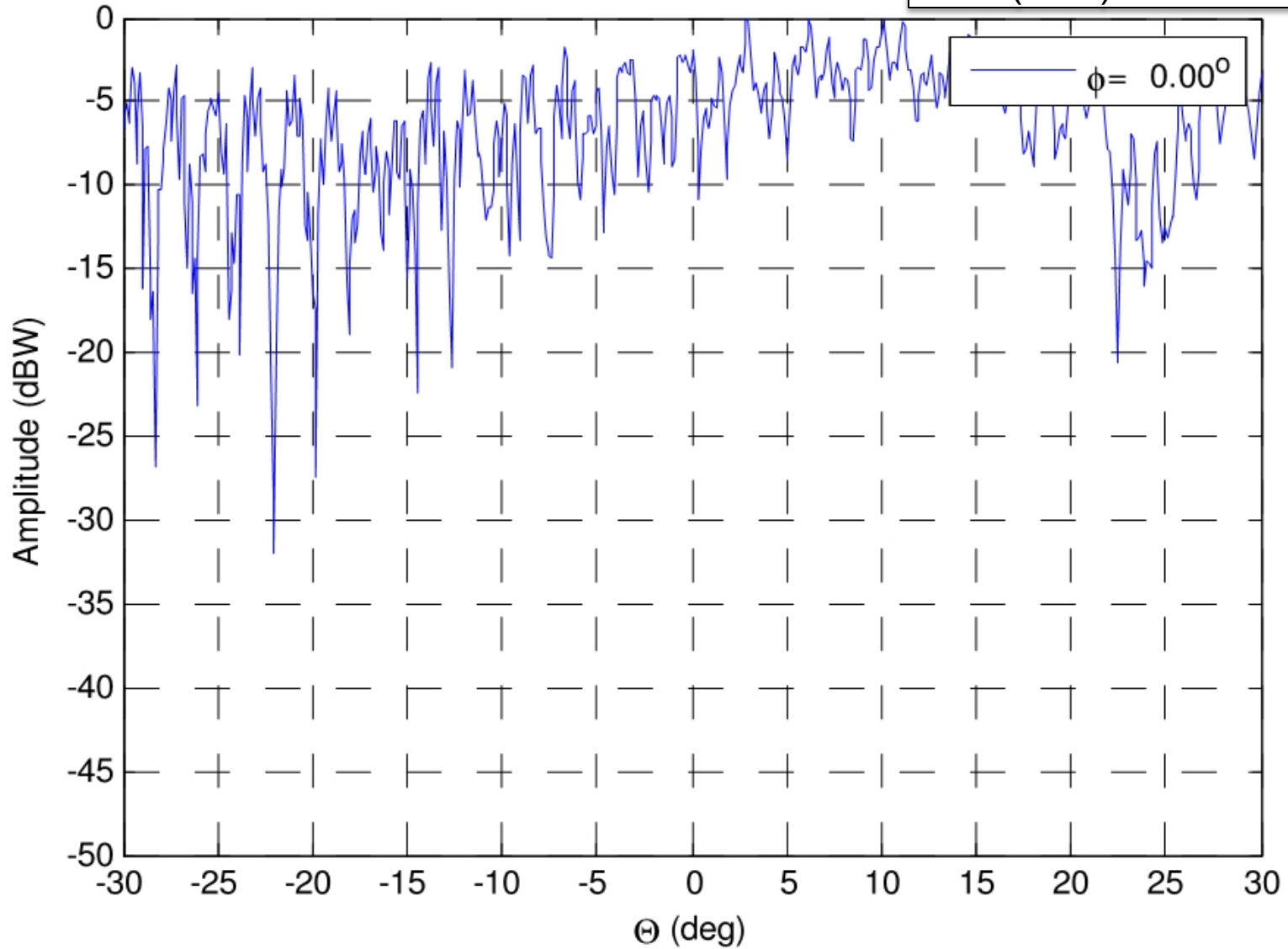
Normalized pattern cuts - farfield

Input file: tx-17.5-lhcp--10.cut, Peak: -2.10 dBW, Date: 14-Oct-2011



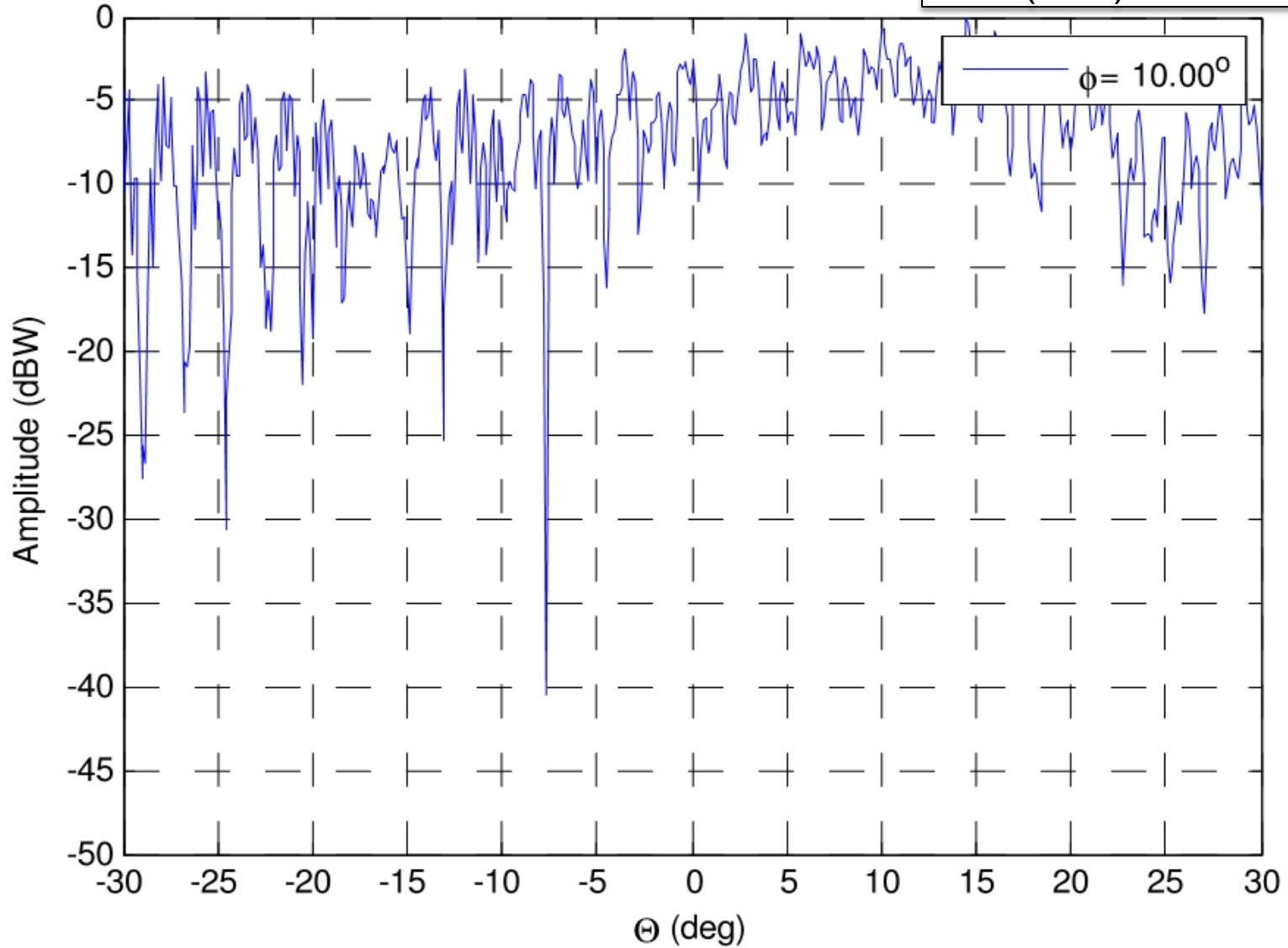
Normalized pattern cuts - farfield

Input file: tx-17.5-lhcp-0.cut, Peak: -2.27 dBW, EIRP (max) = 60.2 dBW



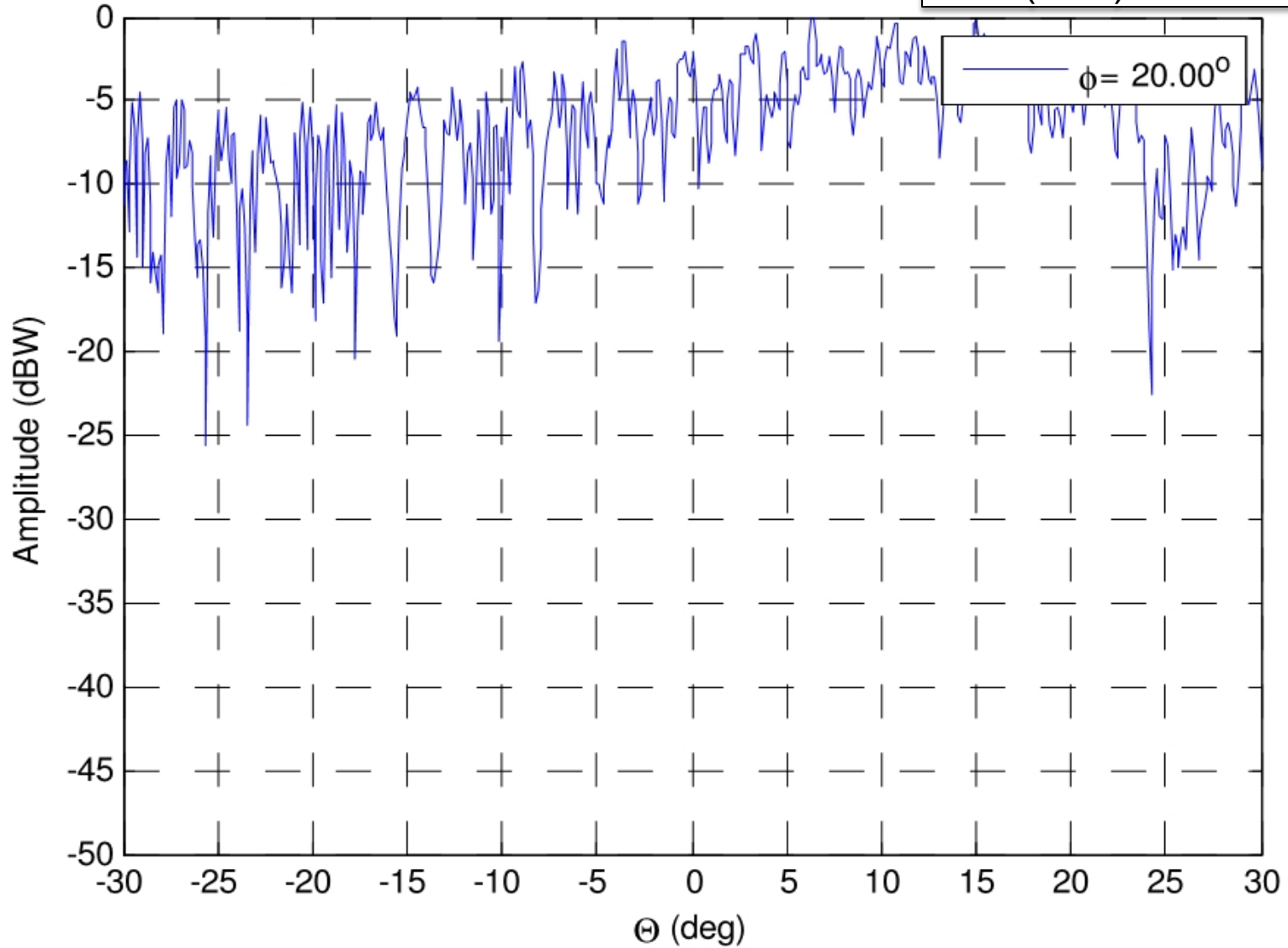
Normalized pattern cuts - farfield

Input file: tx-17.5-lhcp-10.cut, Peak: -1.63 dBW, EIRP (max) = 60.2 dBW



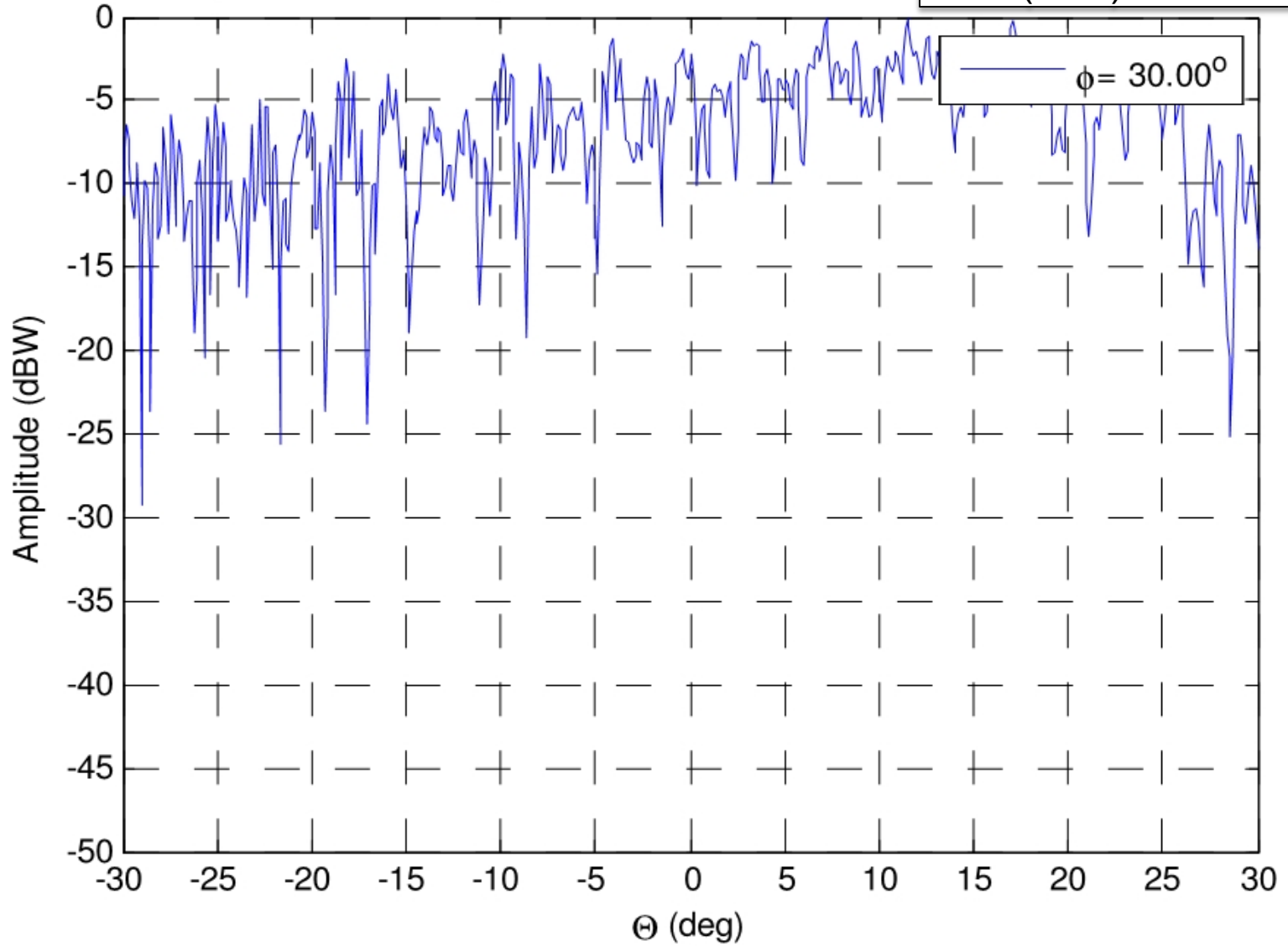
Normalized pattern cuts - farfield

Input file: tx-17.5-lhcp-20.cut, Peak: -2.10 dBW, EIRP (max) = 60.2 dBW



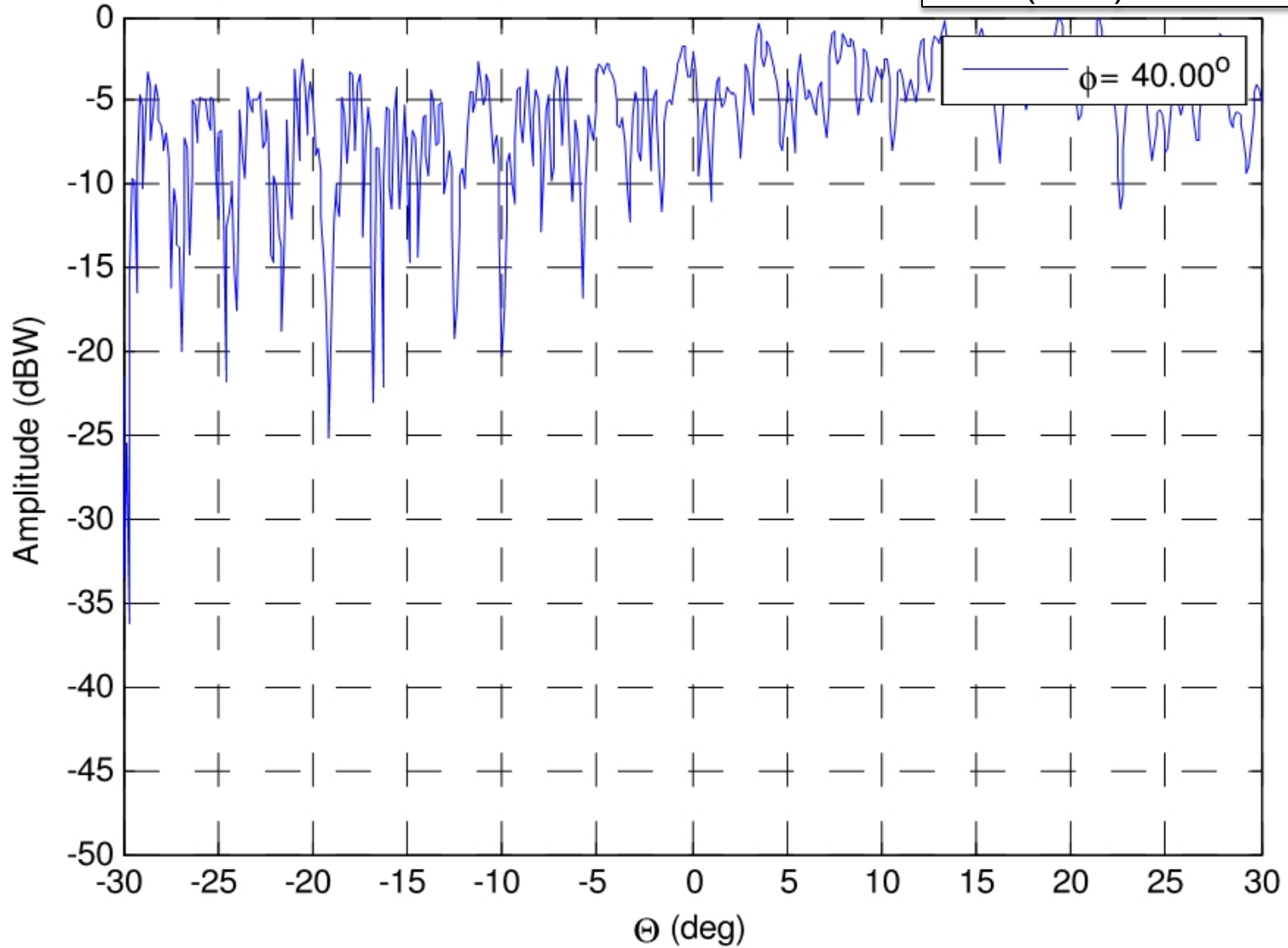
Normalized pattern cuts - farfield

Input file: tx-17.5-lhcp-30.cut, Peak: -2.01 dBW, EIRP (max) = 60.2 dBW



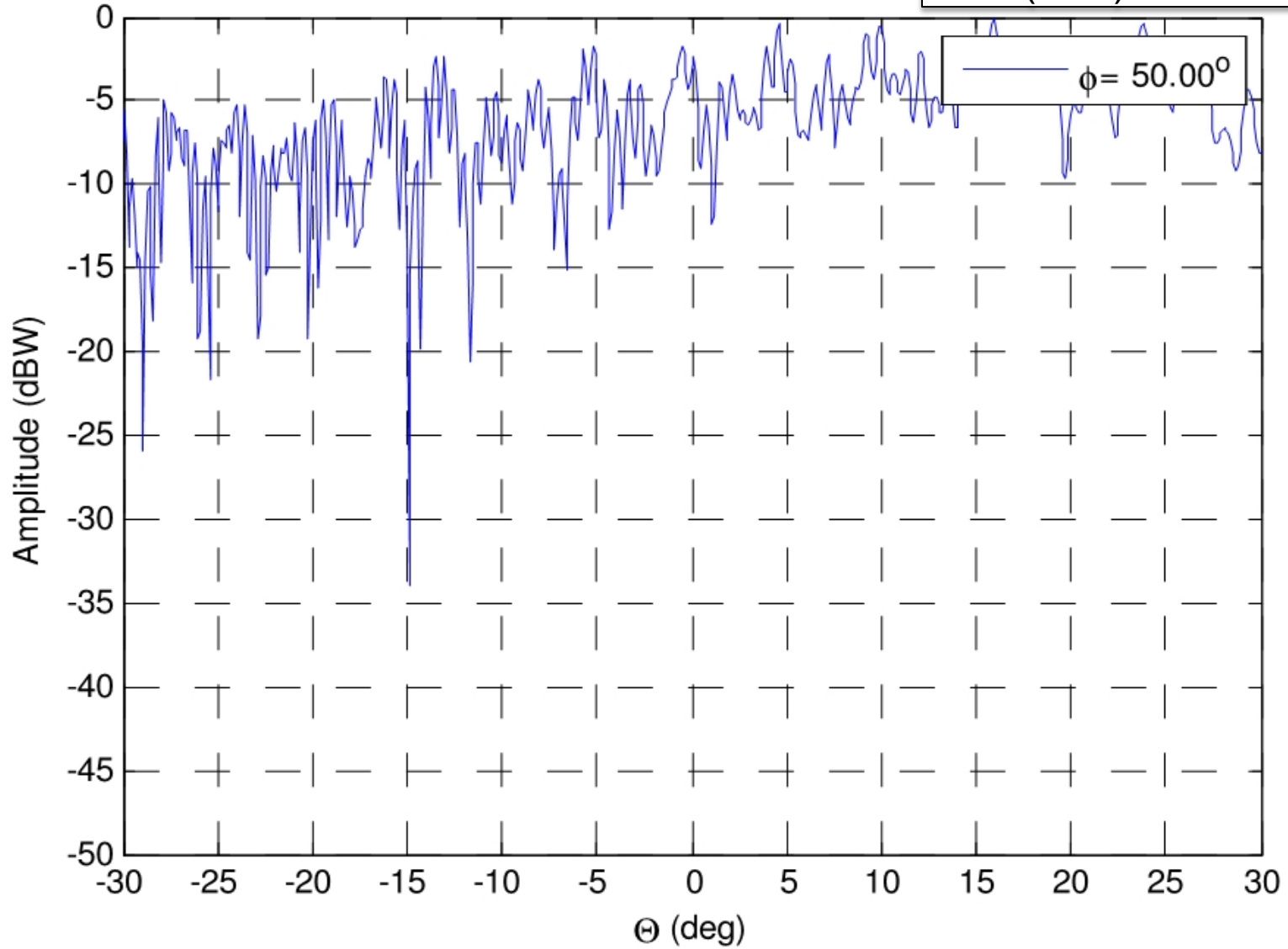
Normalized pattern cuts - farfield

Input file: tx-17.5-lhcp-40.cut, Peak: -2.13 dBW, EIRP (max) = 60.2 dBW



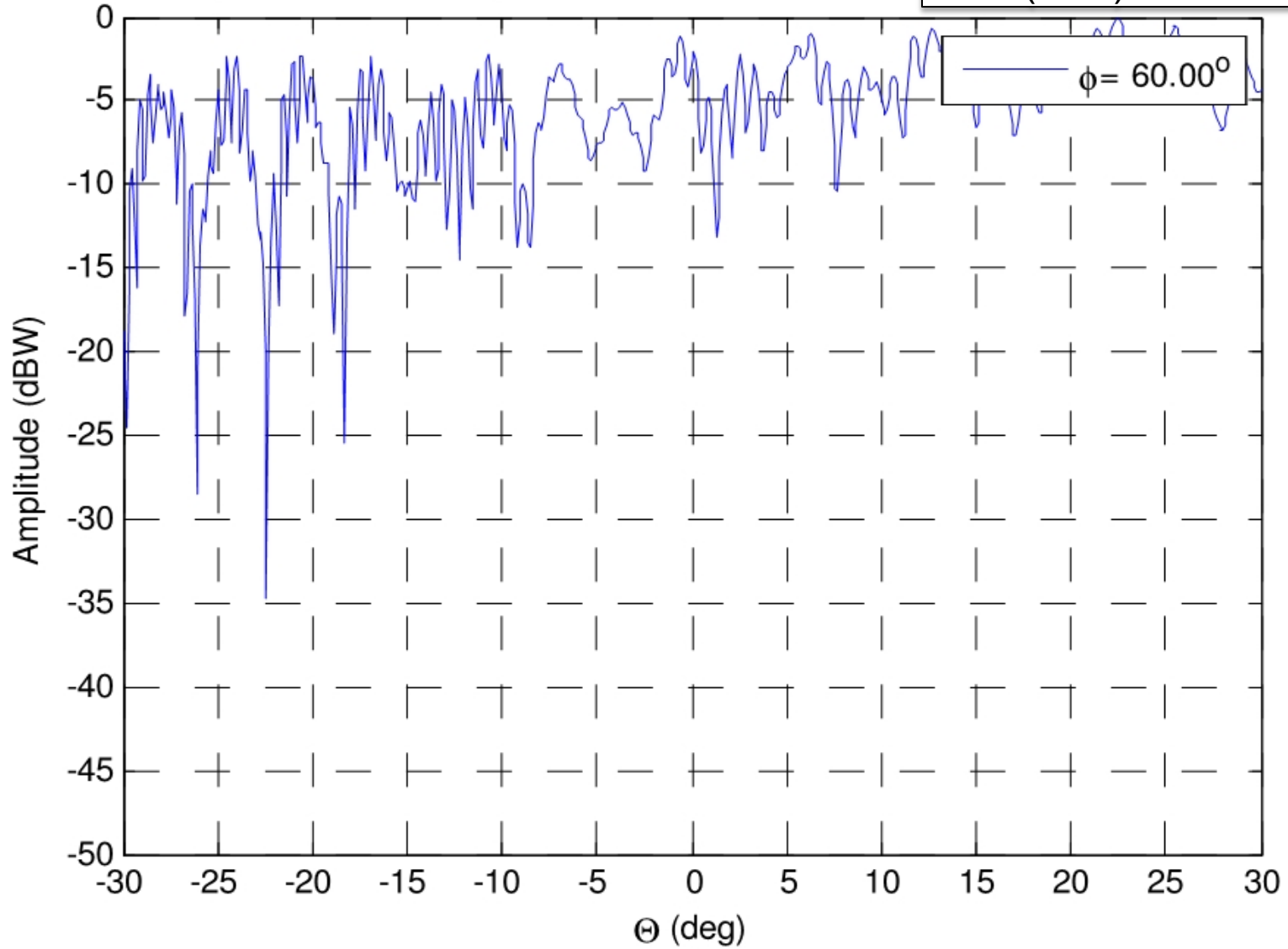
Normalized pattern cuts - farfield

Input file: tx-17.5-lhcp-50.cut, Peak: -1.70 dBW, EIRP (max) = 60.2 dBW



Normalized pattern cuts - farfield

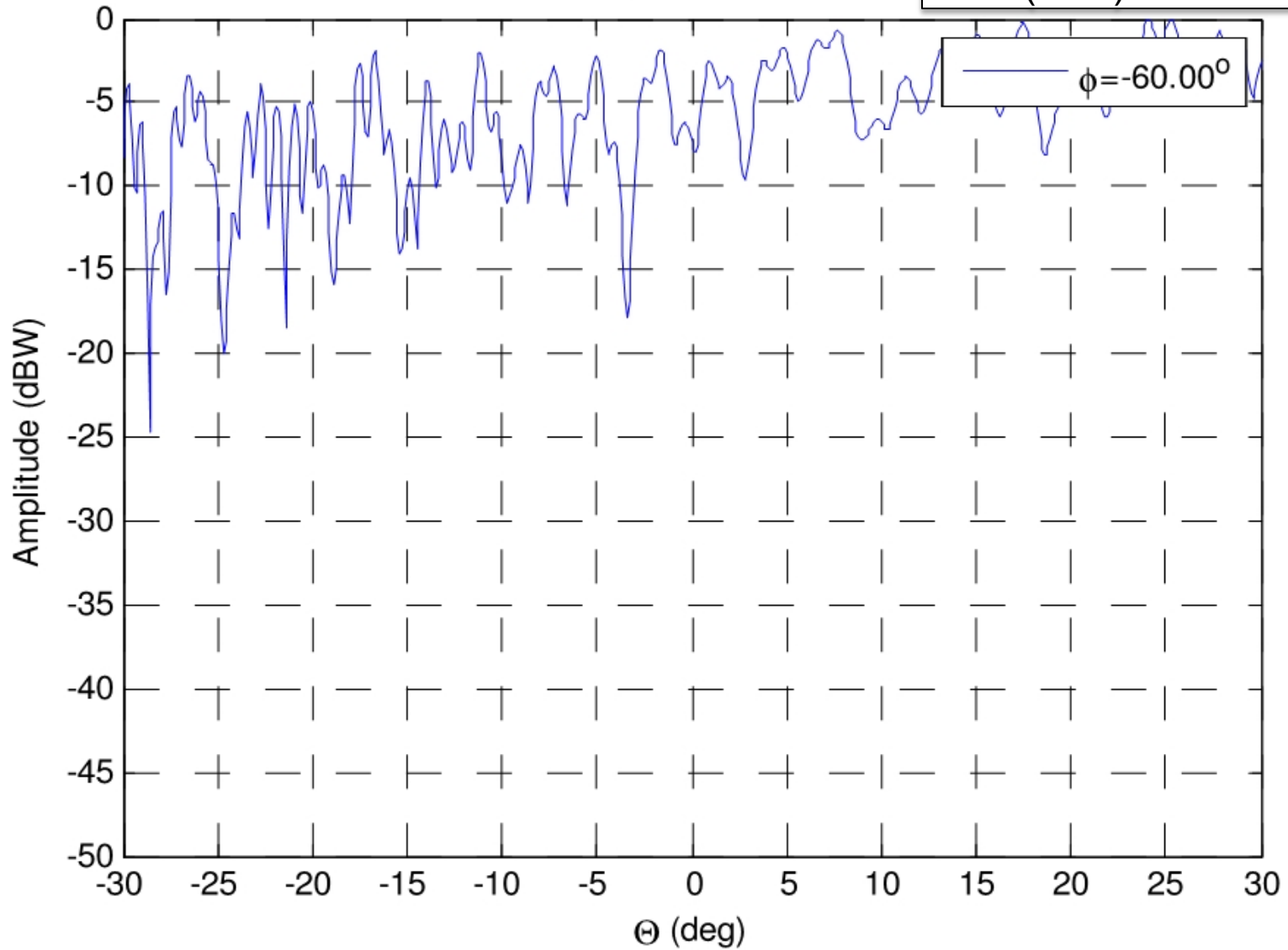
Input file: tx-17.5-lhcp-60.cut, Peak: -2.05 dBW, EIRP (max) = 60.2 dBW



RHCP at 17.7 GHz

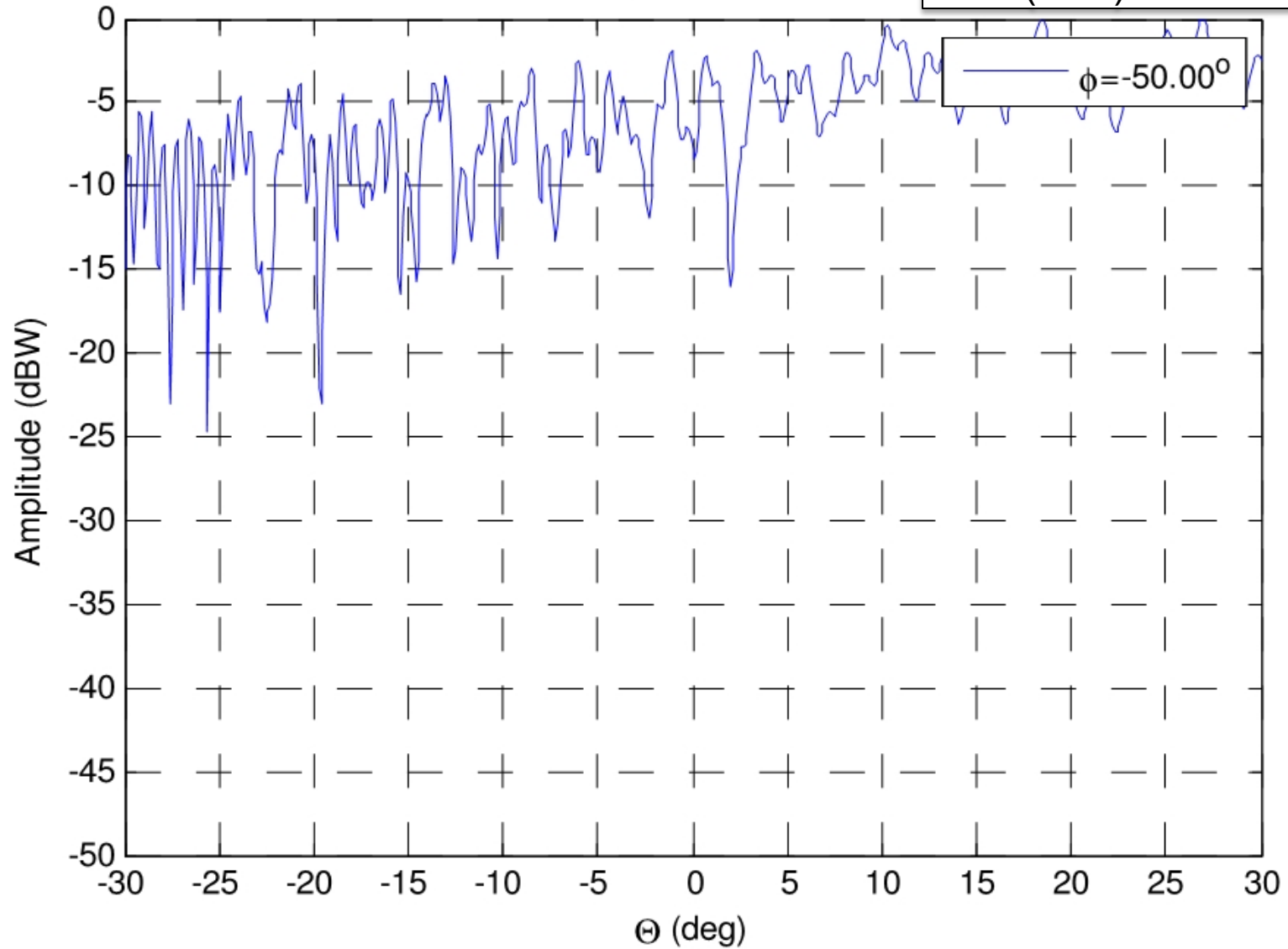
Normalized pattern cuts - farfield

Input file: tx-17.7-rhcp--60.cut, Peak: -2.32 dBW, EIRP (max) = 60.2 dBW



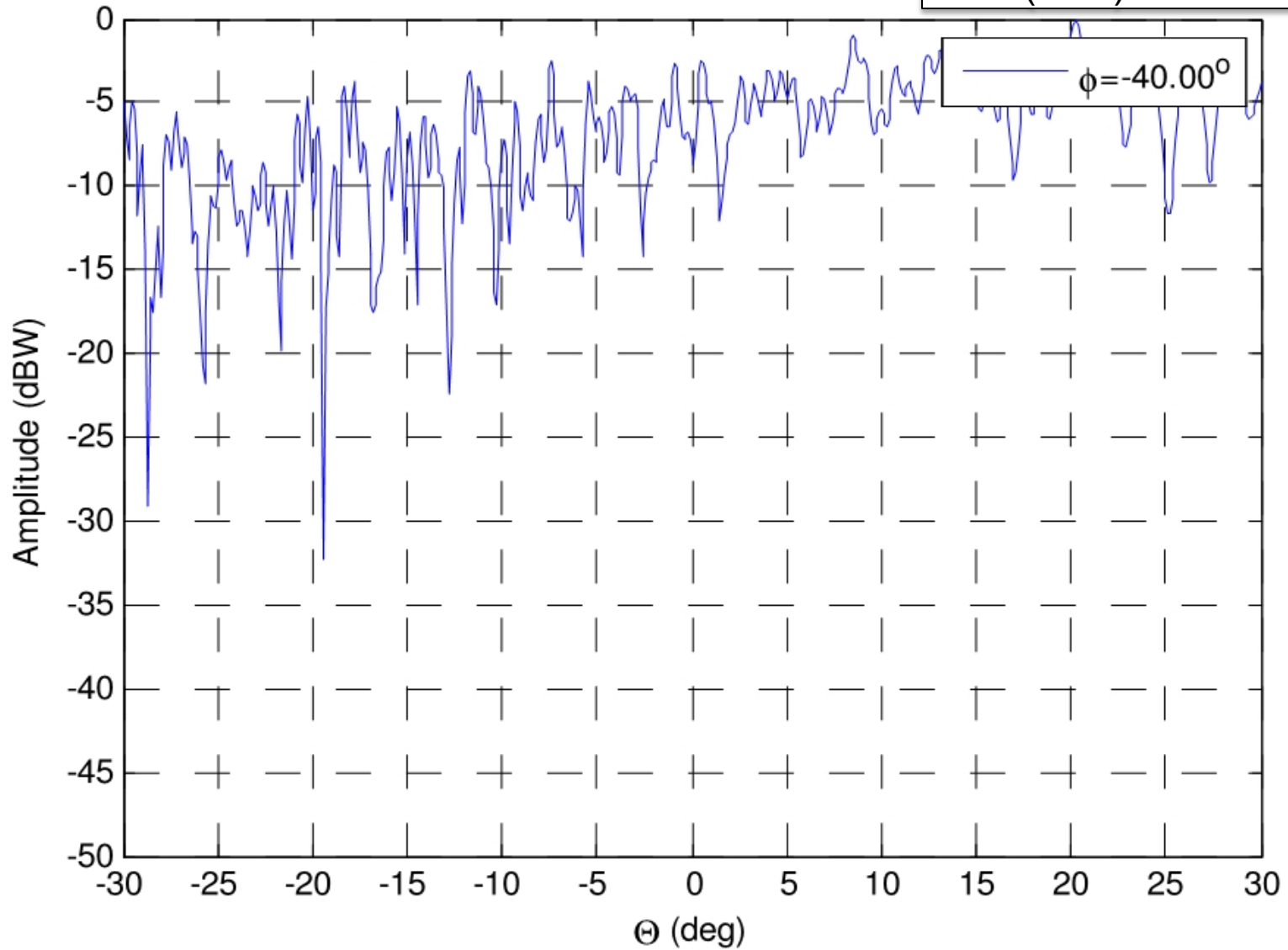
Normalized pattern cuts - farfield

Input file: tx-17.7-rhcp--50.cut, Peak: -1.90 dBW, EIRP (max) = 60.2 dBW



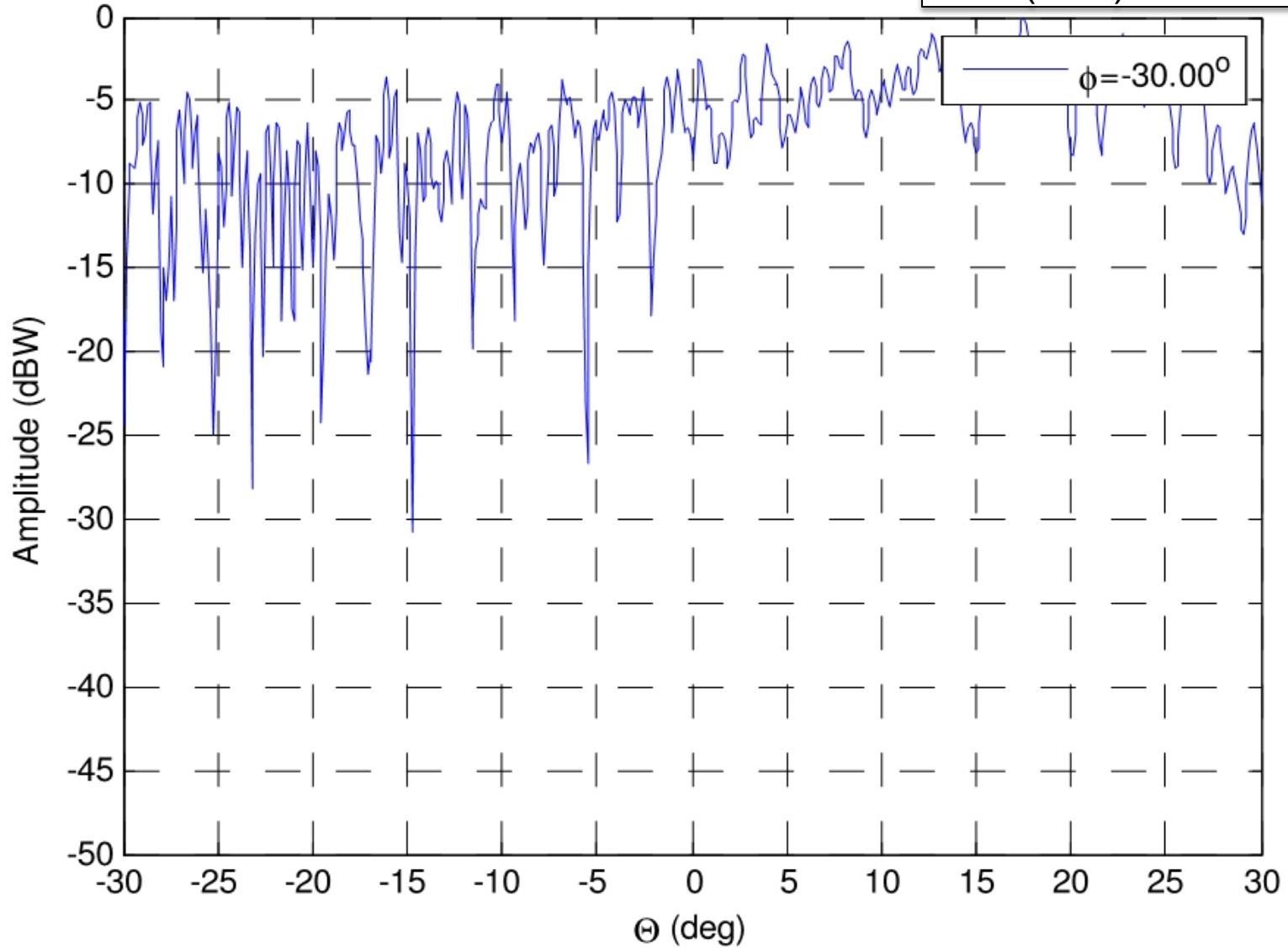
Normalized pattern cuts - farfield

Input file: tx-17.7-rhcp--40.cut, Peak: -1.47 dBW, EIRP (max) = 60.2 dBW



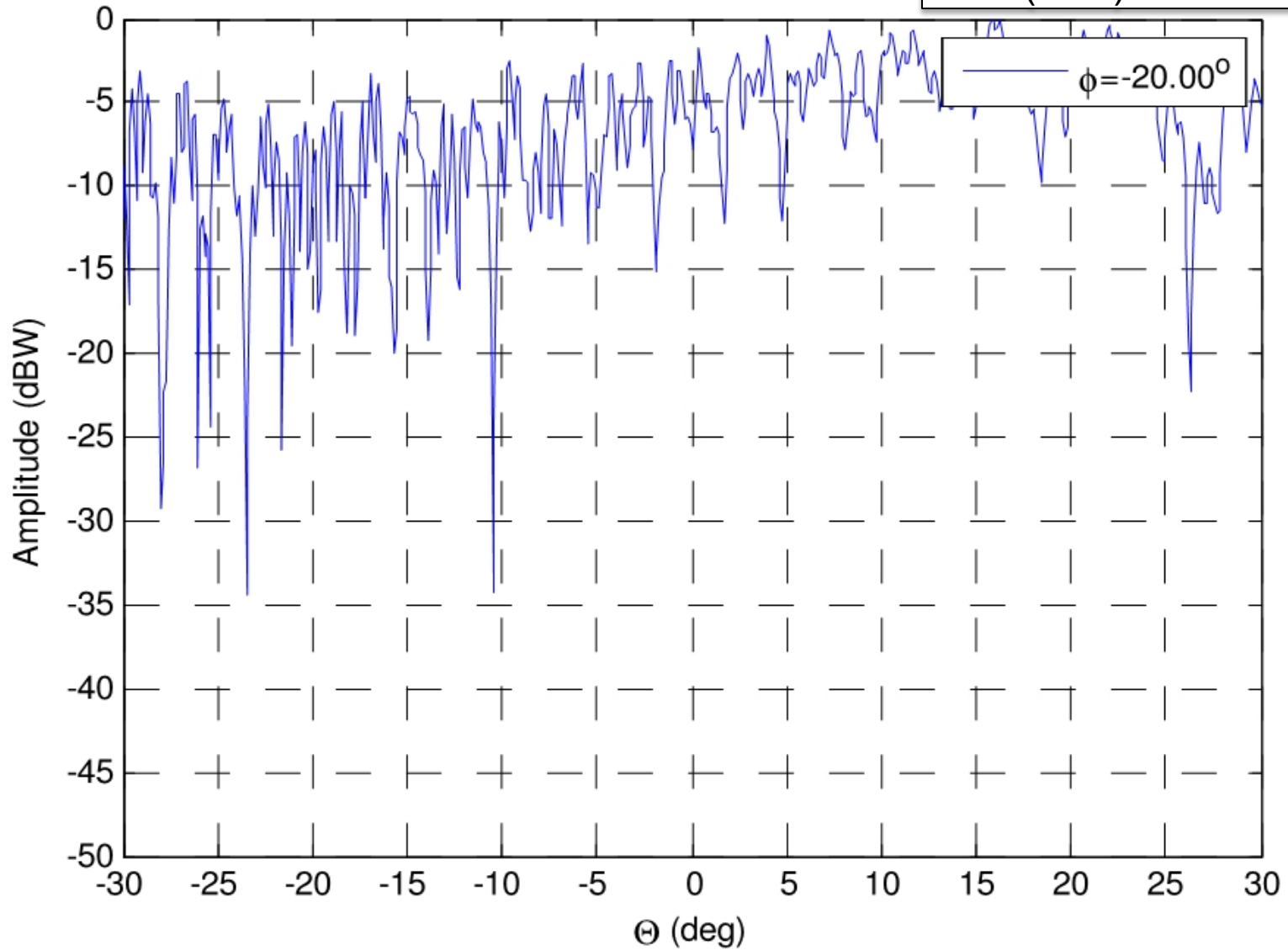
Normalized pattern cuts - farfield

Input file: tx-17.7-rhcp--30.cut, Peak: -1.47 dBW, EIRP (max) = 60.2 dBW



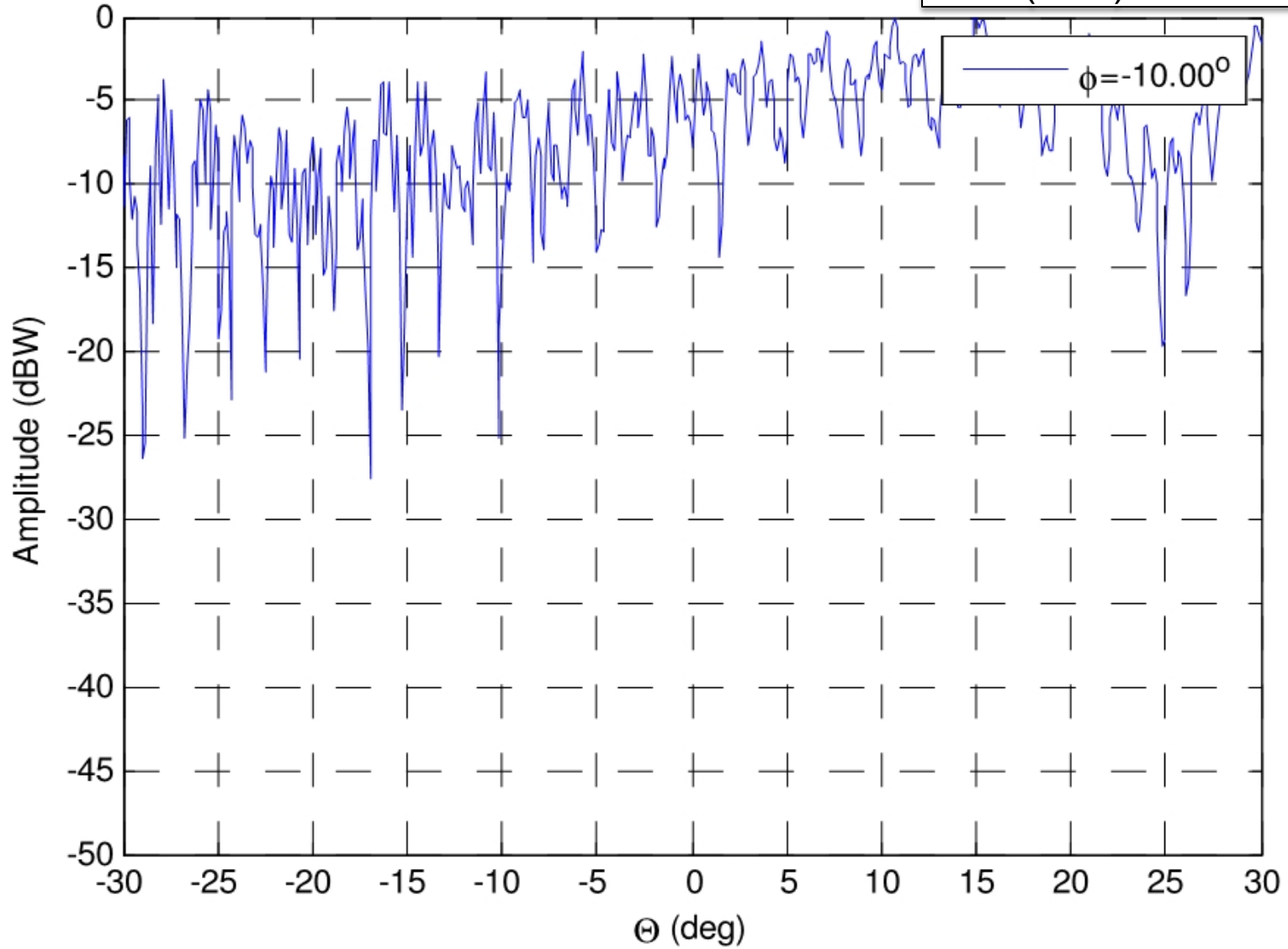
Normalized pattern cuts - farfield

Input file: tx-17.7-rhcp--20.cut, Peak: -2.10 dBW, EIRP (max) = 60.2 dBW



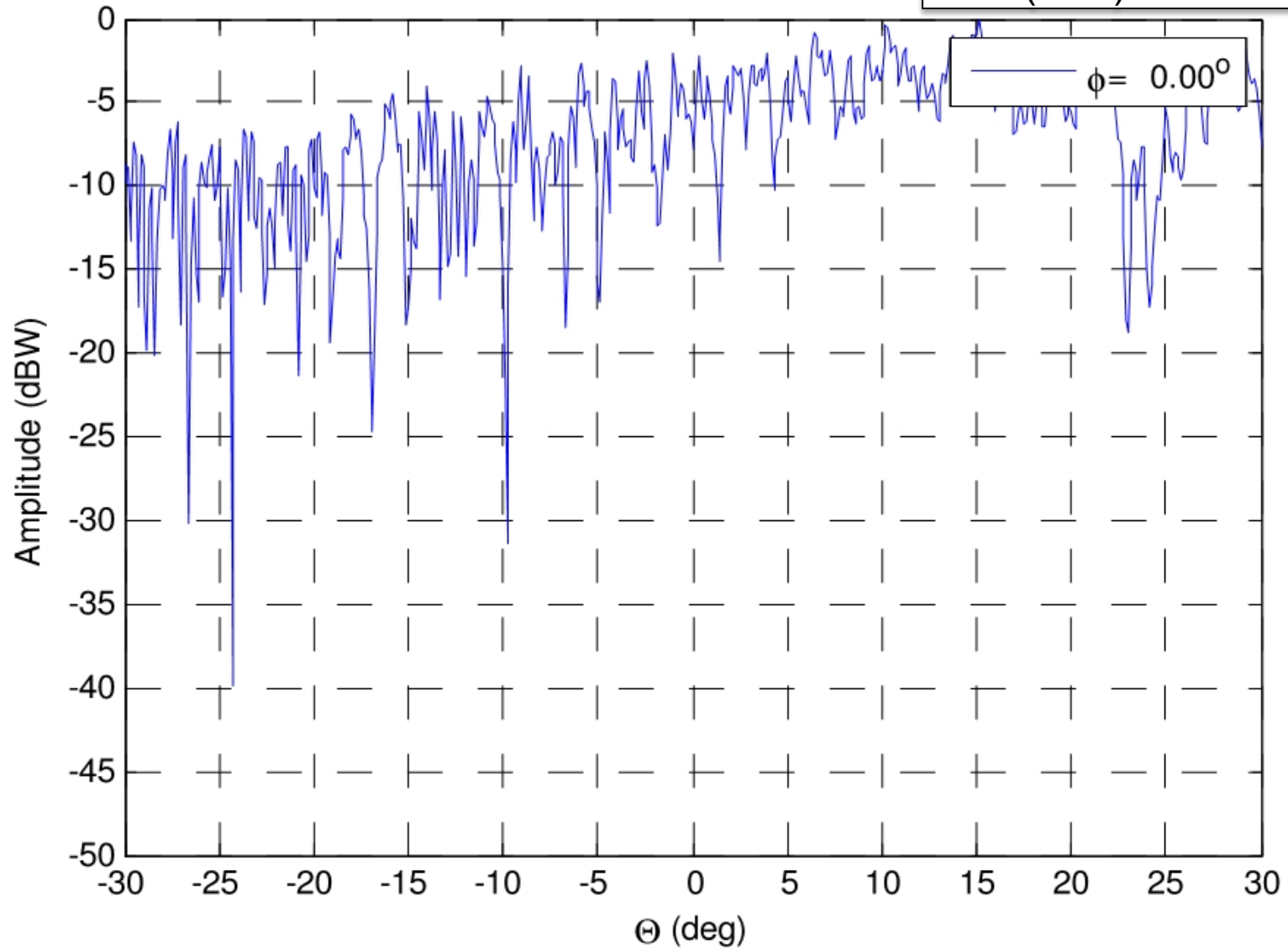
Normalized pattern cuts - farfield

Input file: tx-17.7-rhcp--10.cut, Peak: -1.93 dBW, EIRP (max) = 60.2 dBW



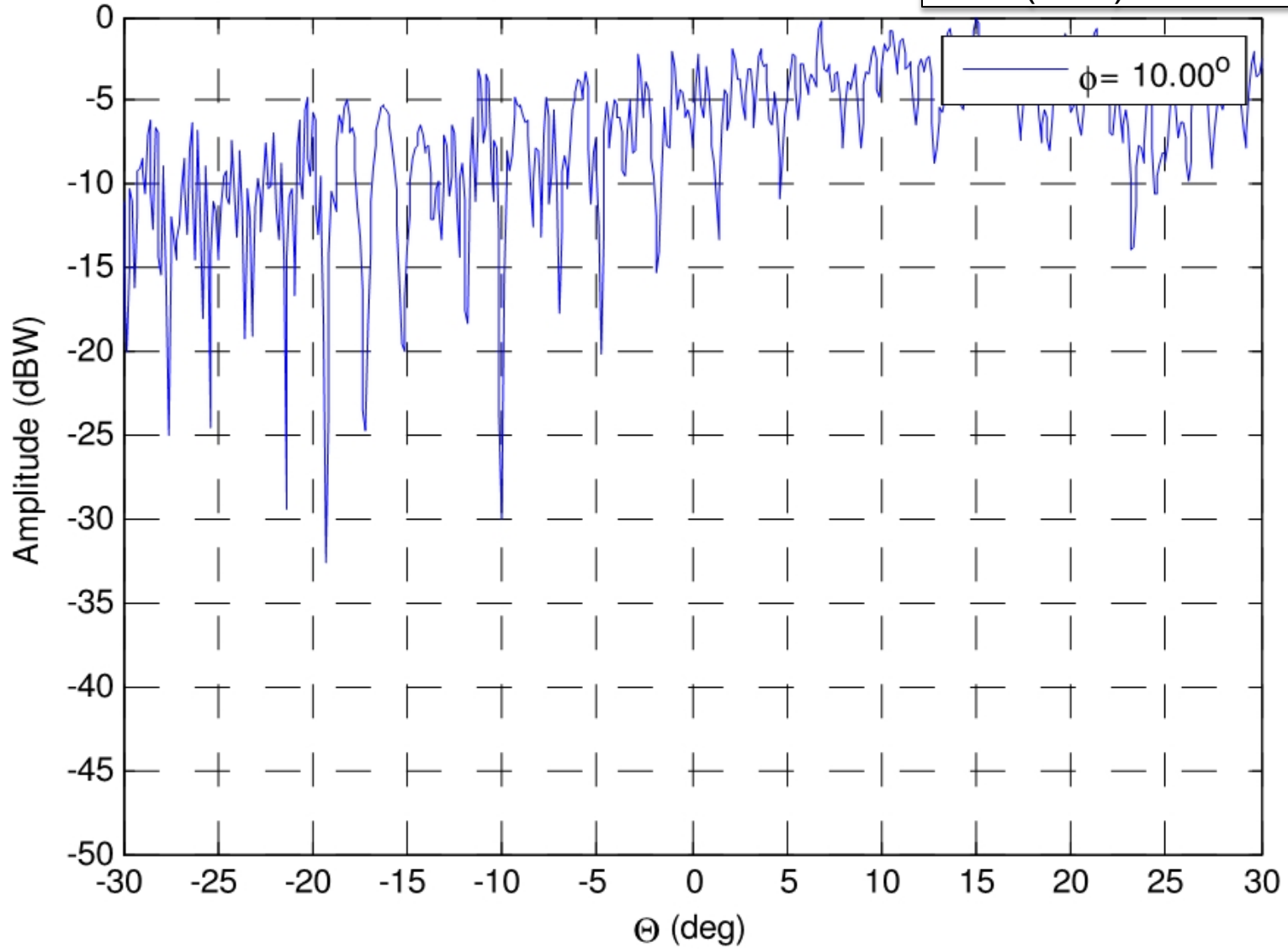
Normalized pattern cuts - farfield

Input file: tx-17.7-rhcp-0.cut, Peak: -1.93 dBW, EIRP (max) = 60.2 dBW



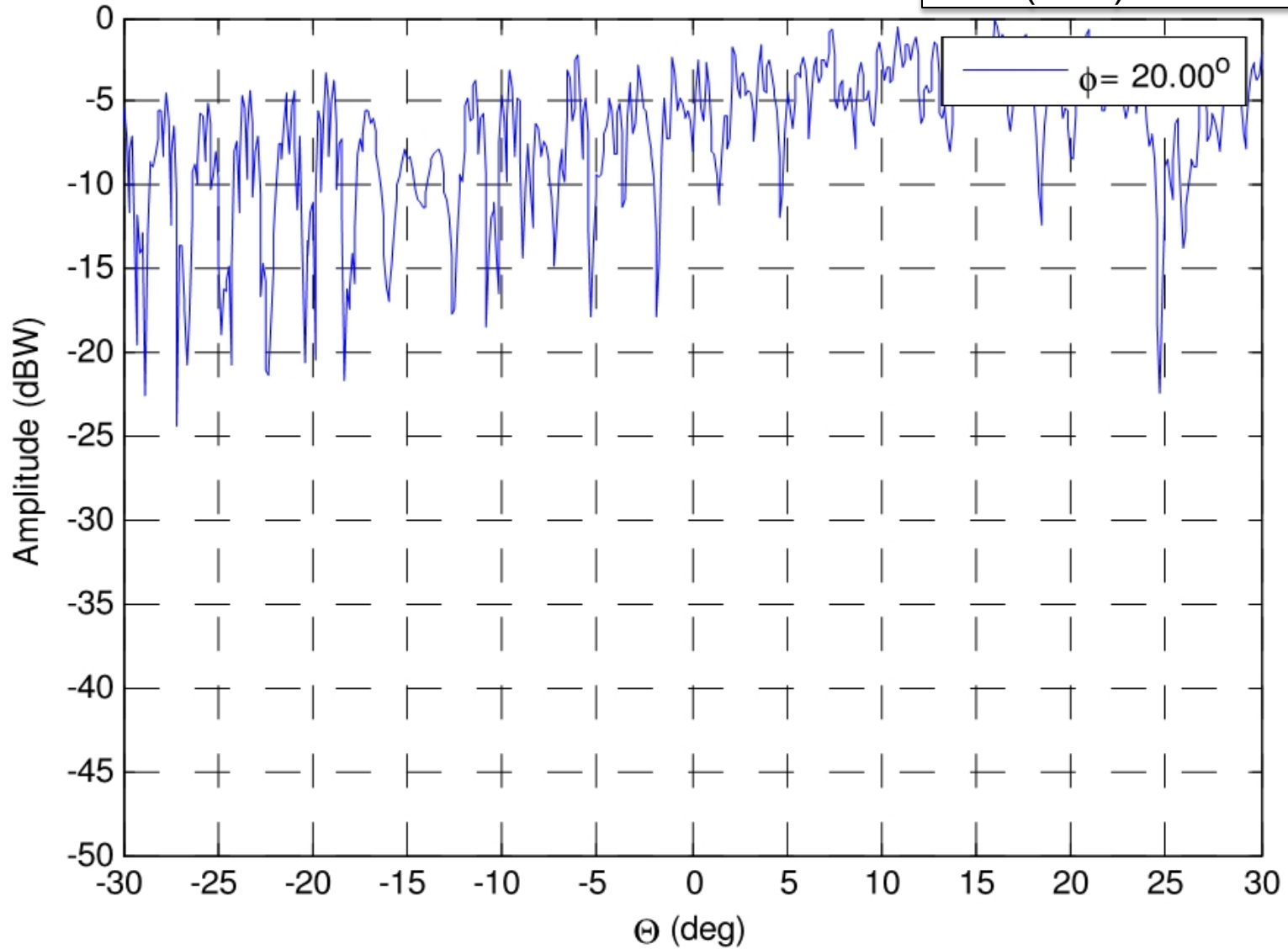
Normalized pattern cuts - farfield

Input file: tx-17.7-rhcp-10.cut, Peak: -1.94 dBW, EIRP (max) = 60.2 dBW



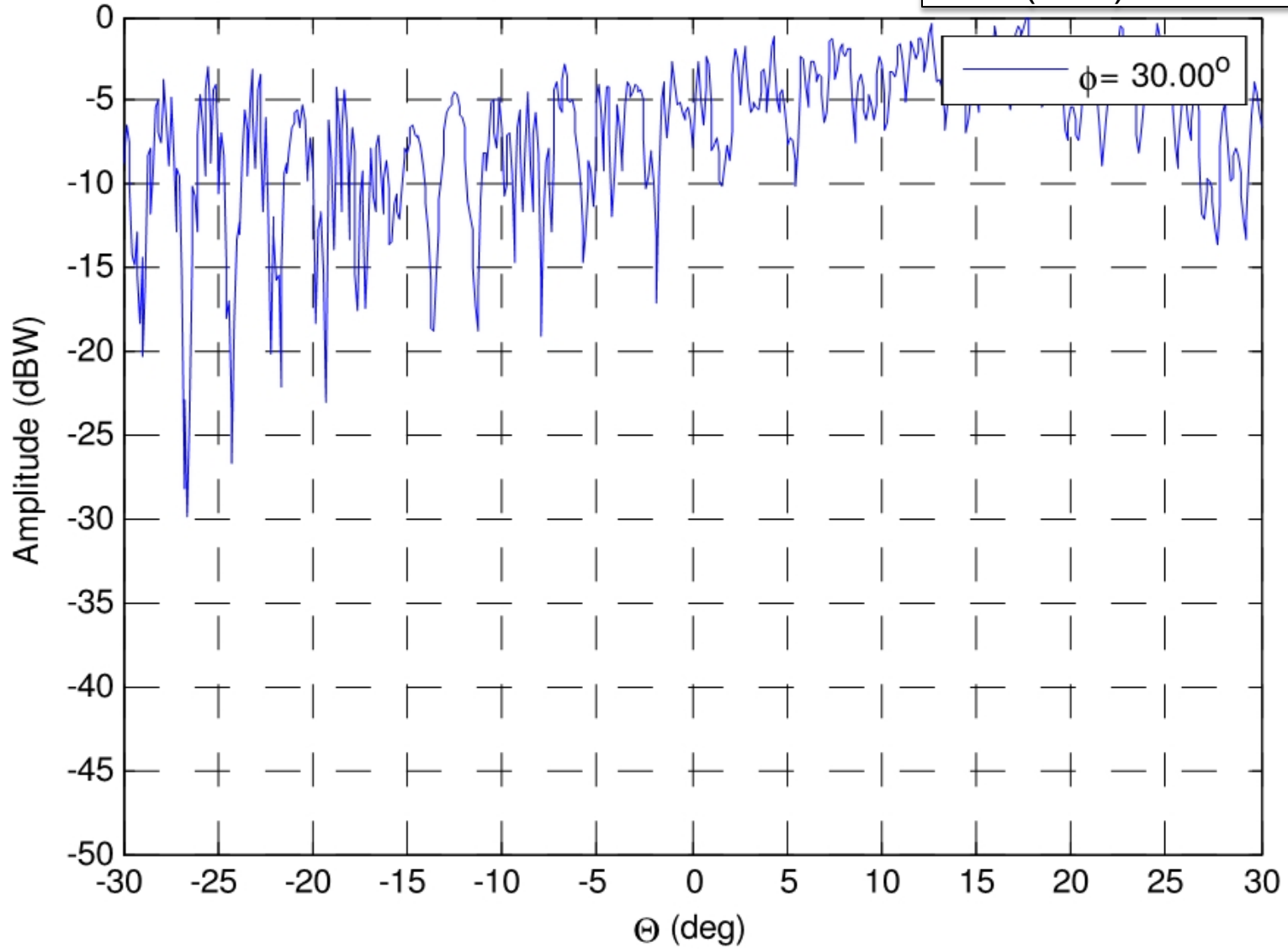
Normalized pattern cuts - farfield

Input file: tx-17.7-rhcp-20.cut, Peak: -1.84 dBW, EIRP (max) = 60.2 dBW



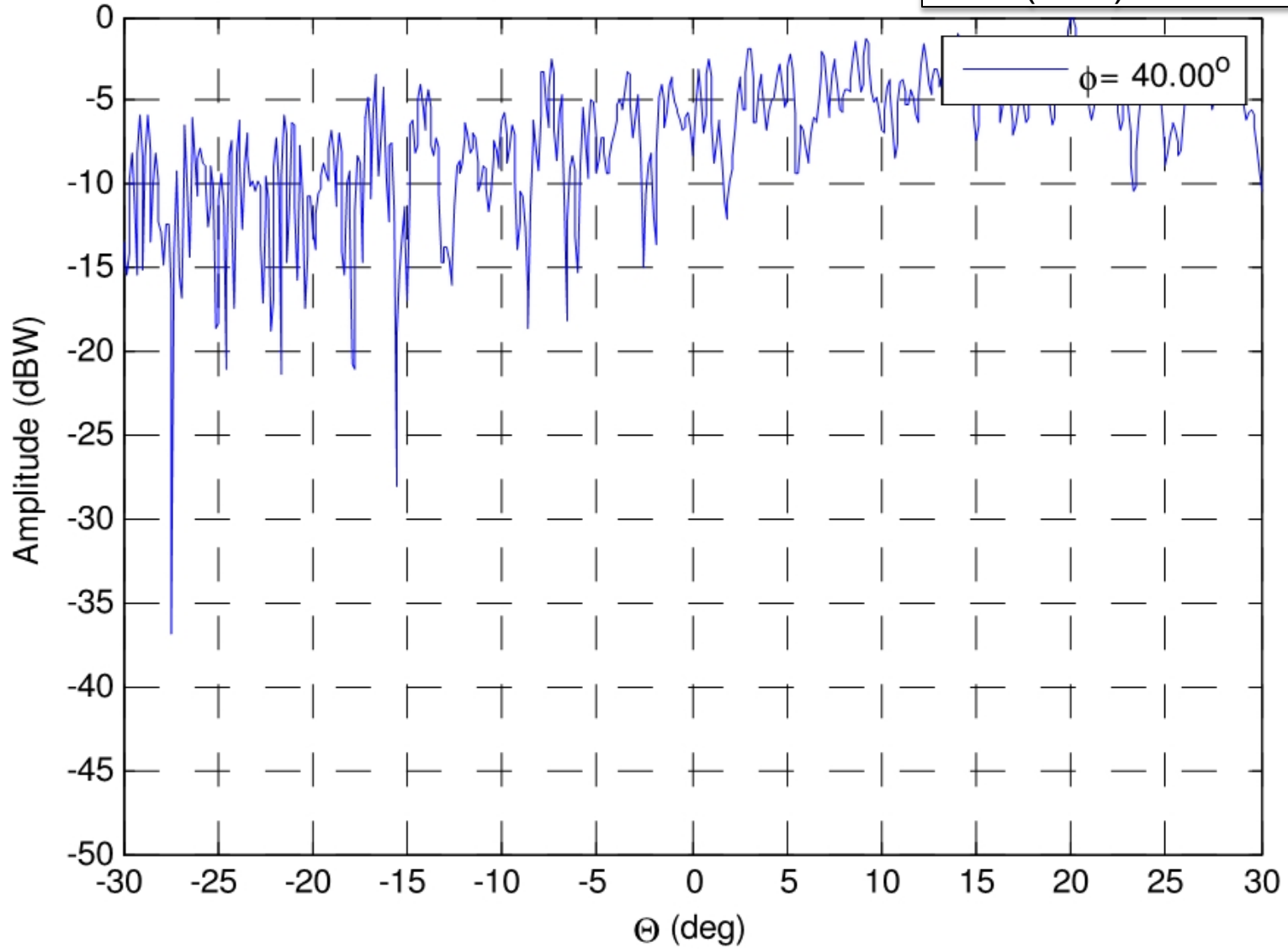
Normalized pattern cuts - farfield

Input file: tx-17.7-rhcp-30.cut, Peak: -1.87 dBW, EIRP (max) = 60.2 dBW



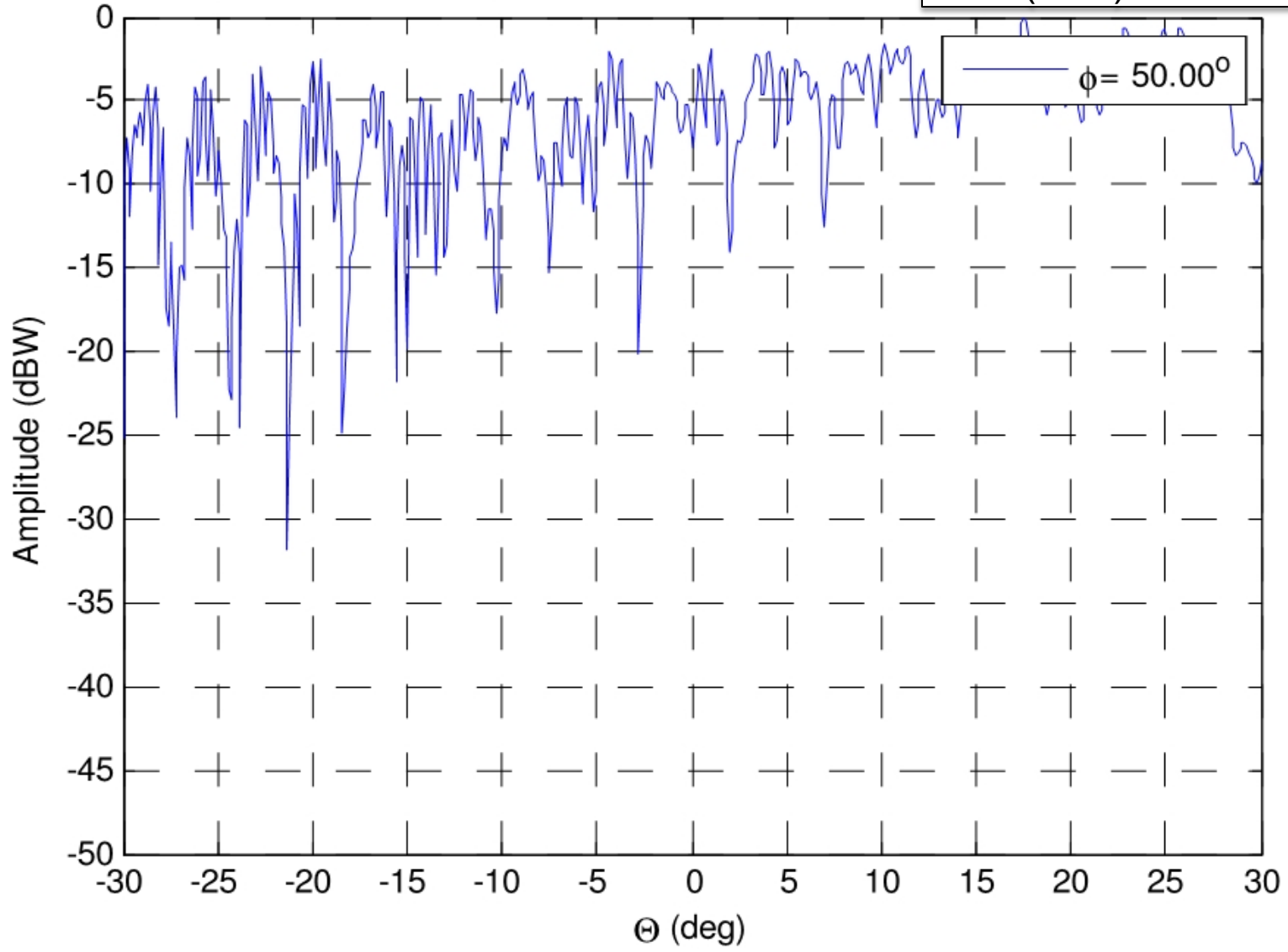
Normalized pattern cuts - farfield

Input file: tx-17.7-rhcp-40.cut, Peak: -1.43 dBW, EIRP (max) = 60.2 dBW



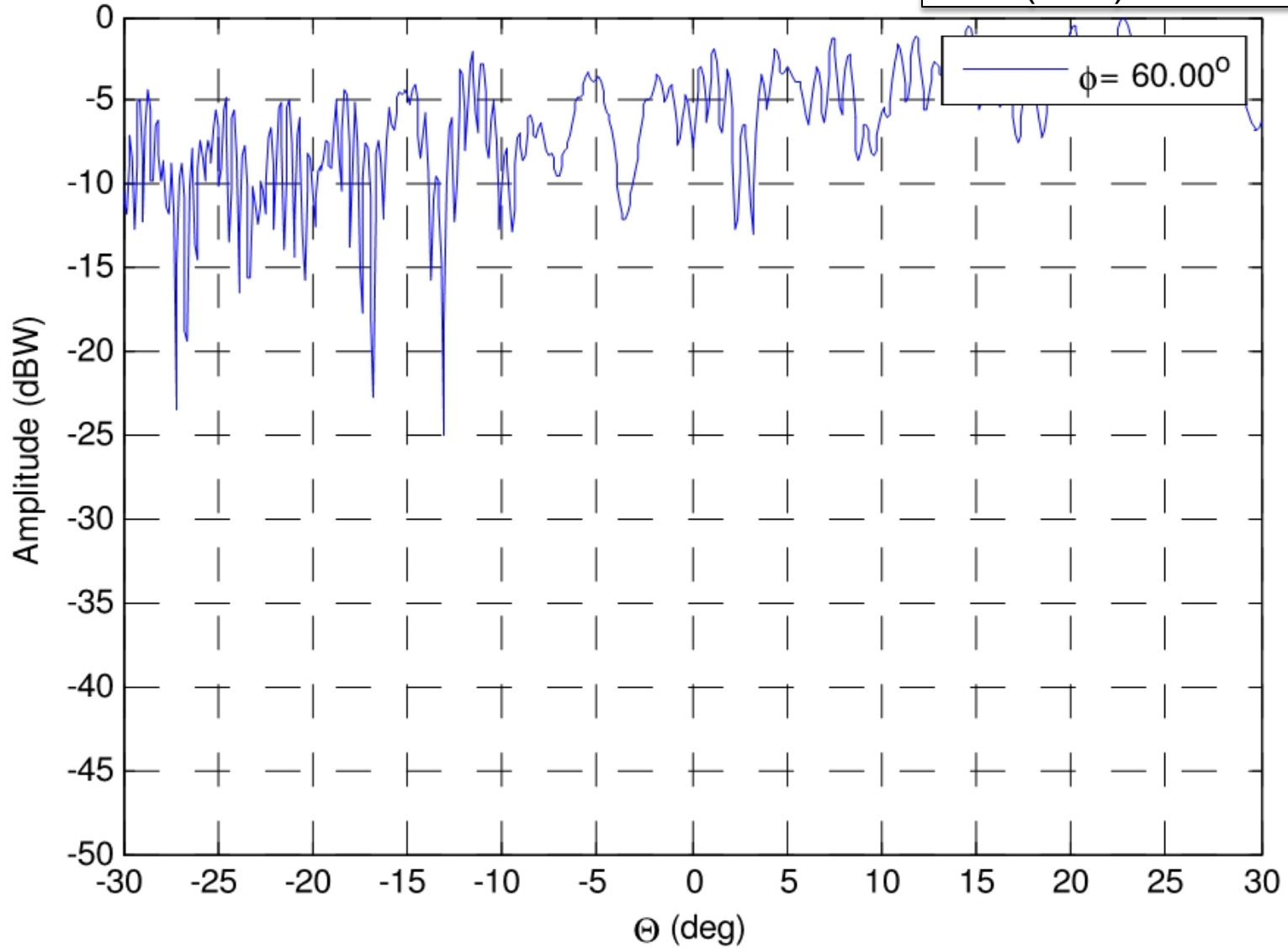
Normalized pattern cuts - farfield

Input file: tx-17.7-rhcp-50.cut, Peak: -1.86 dBW, EIRP (max) = 60.2 dBW



Normalized pattern cuts - farfield

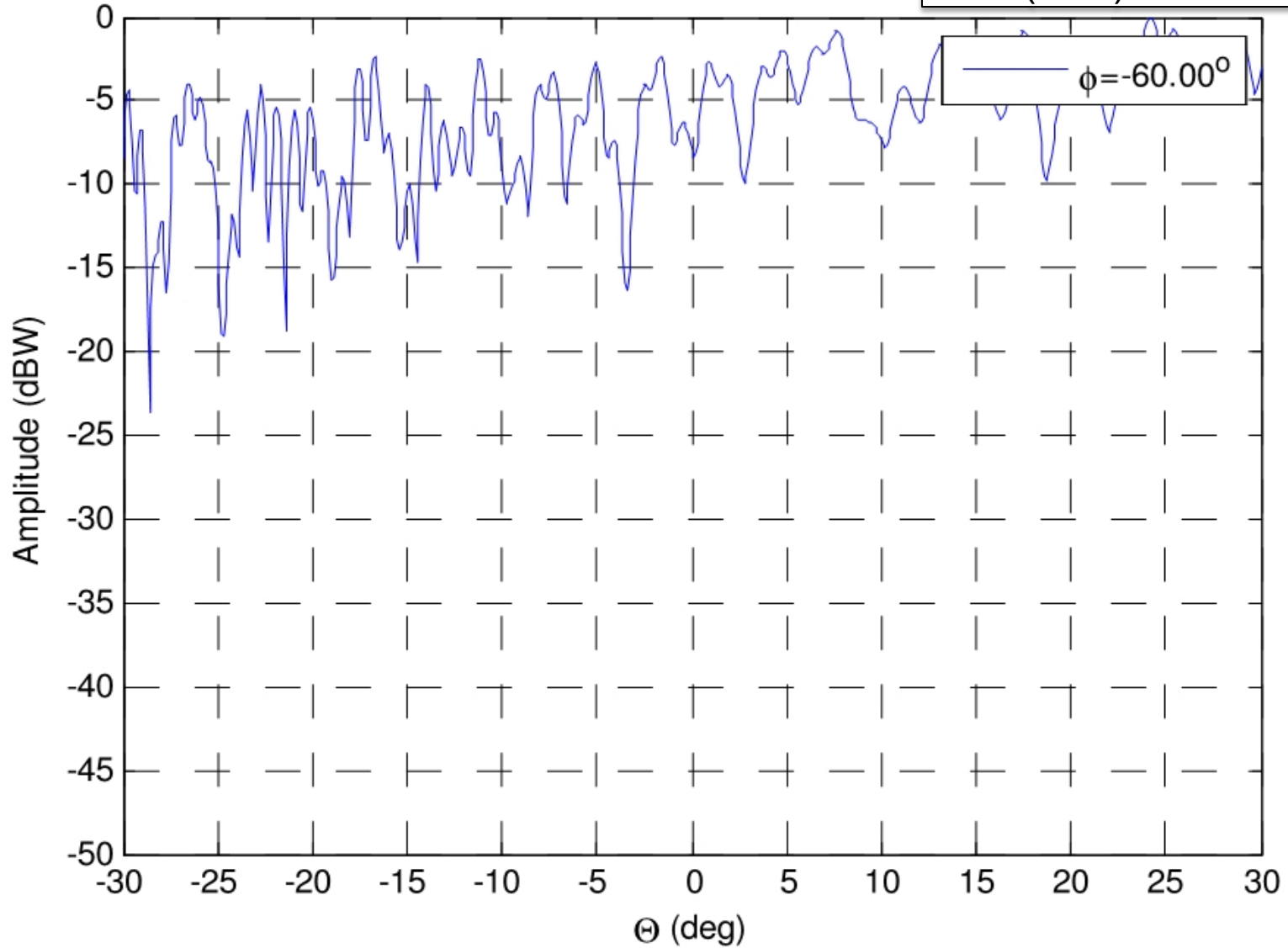
Input file: tx-17.7-rhcp-60.cut, Peak: -2.04 dBW, EIRP (max) = 60.2 dBW



LHCP at 17.7 GHz

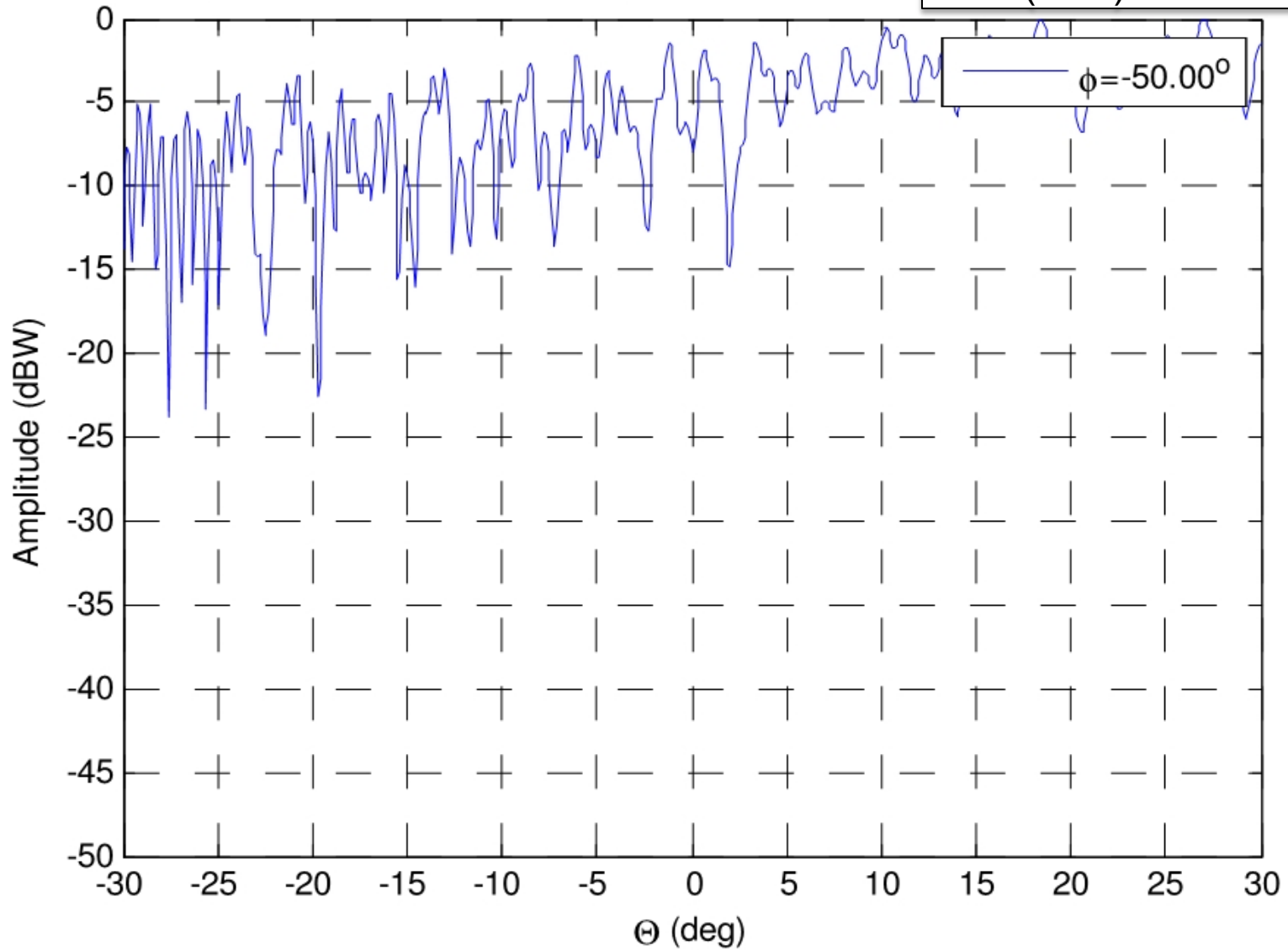
Normalized pattern cuts - farfield

Input file: tx-17.7-lhcp--60.cut, Peak: -1.98 dBW, EIRP (max) = 60.2 dBW



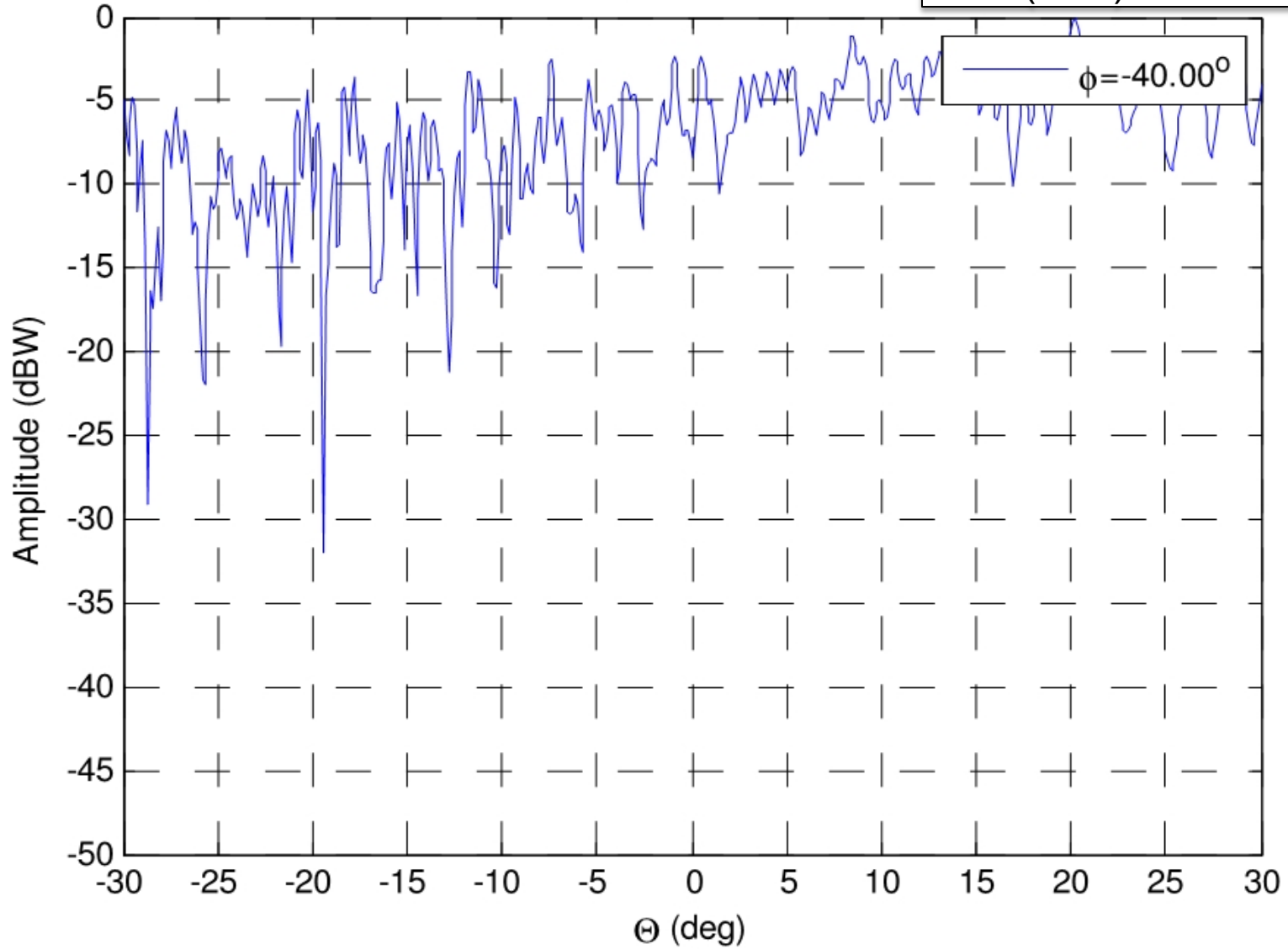
Normalized pattern cuts - farfield

Input file: tx-17.7-lhcp--50.cut, Peak: -2.27 dBW, EIRP (max) = 60.2 dBW



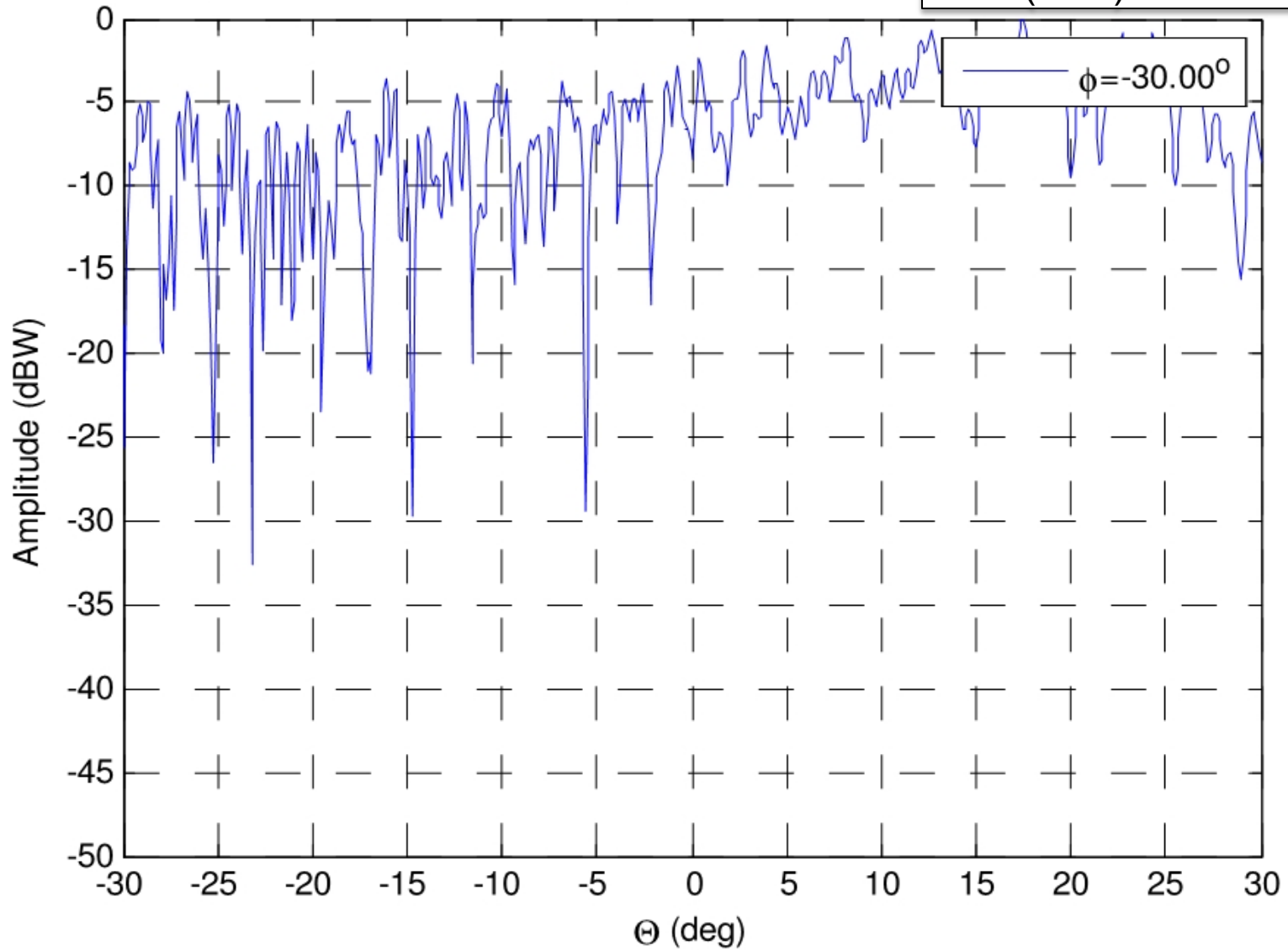
Normalized pattern cuts - farfield

Input file: tx-17.7-lhcp--40.cut, Peak: -1.57 dBW, EIRP (max) = 60.2 dBW



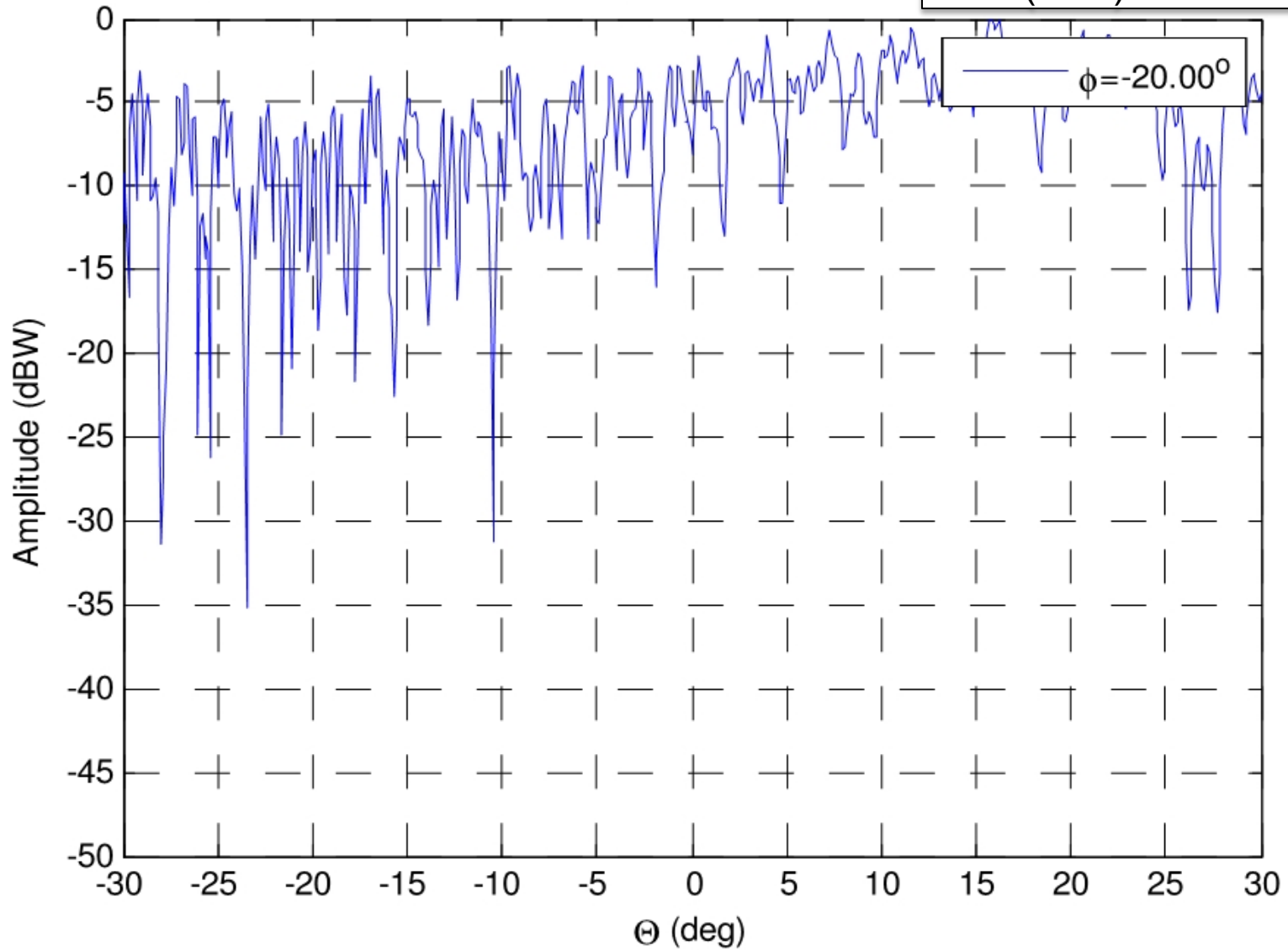
Normalized pattern cuts - farfield

Input file: tx-17.7-lhcp--30.cut, Peak: -1.65 dBW, EIRP (max) = 60.2 dBW



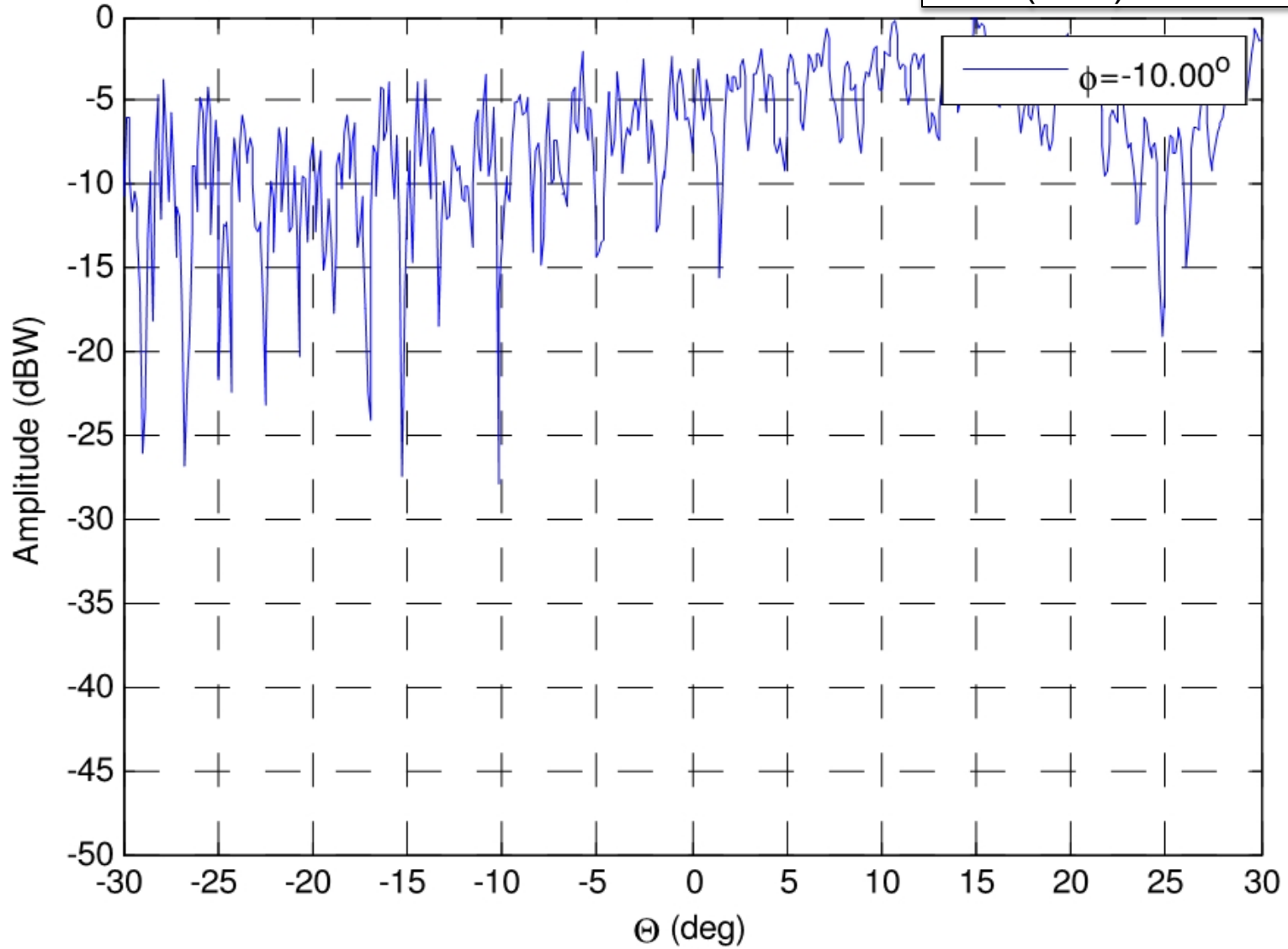
Normalized pattern cuts - farfield

Input file: tx-17.7-lhcp--20.cut, Peak: -1.97 dBW, EIRP (max) = 60.2 dBW



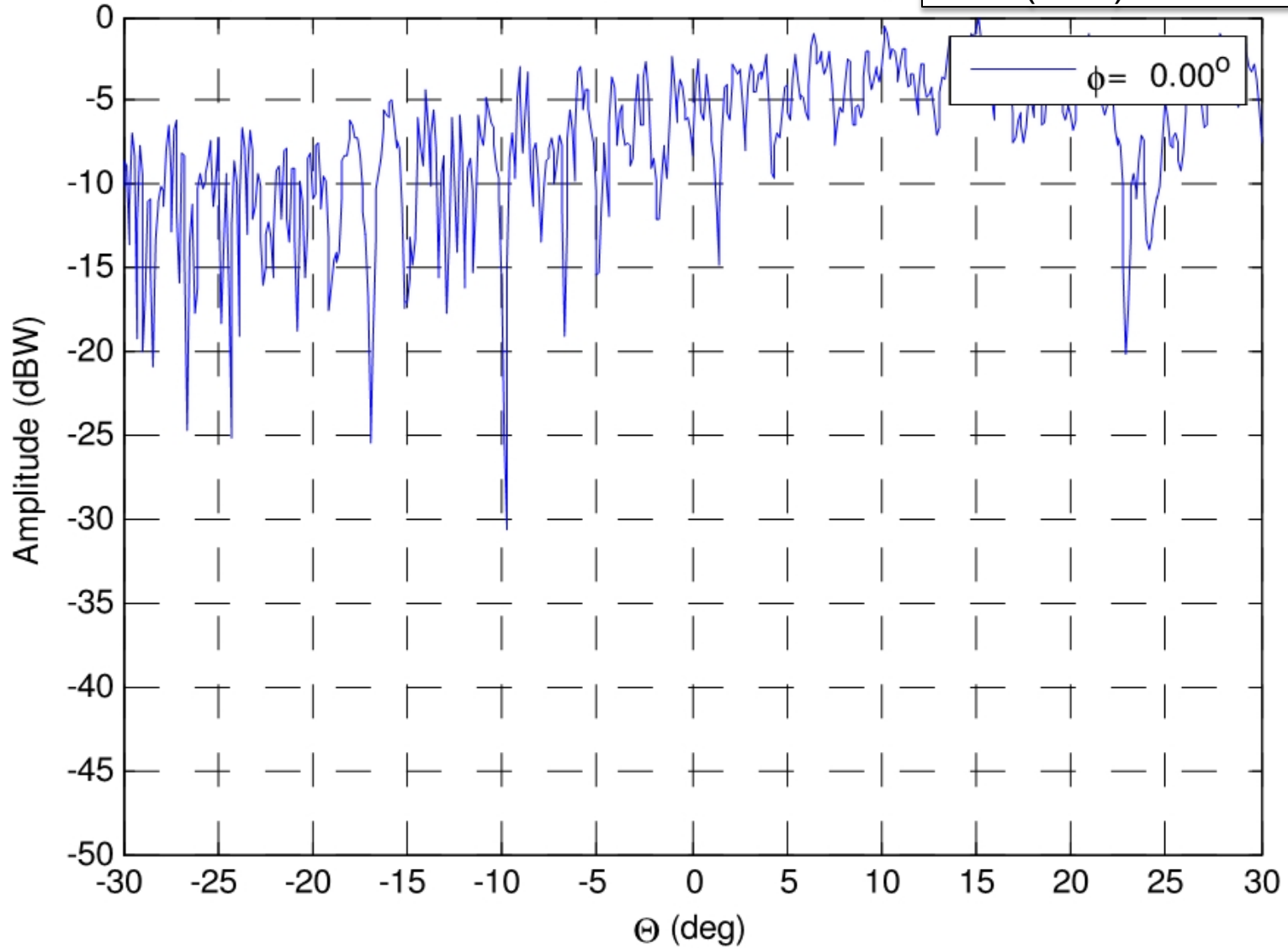
Normalized pattern cuts - farfield

Input file: tx-17.7-lhcp--10.cut, Peak: -1.86 dBW, EIRP (max) = 60.2 dBW



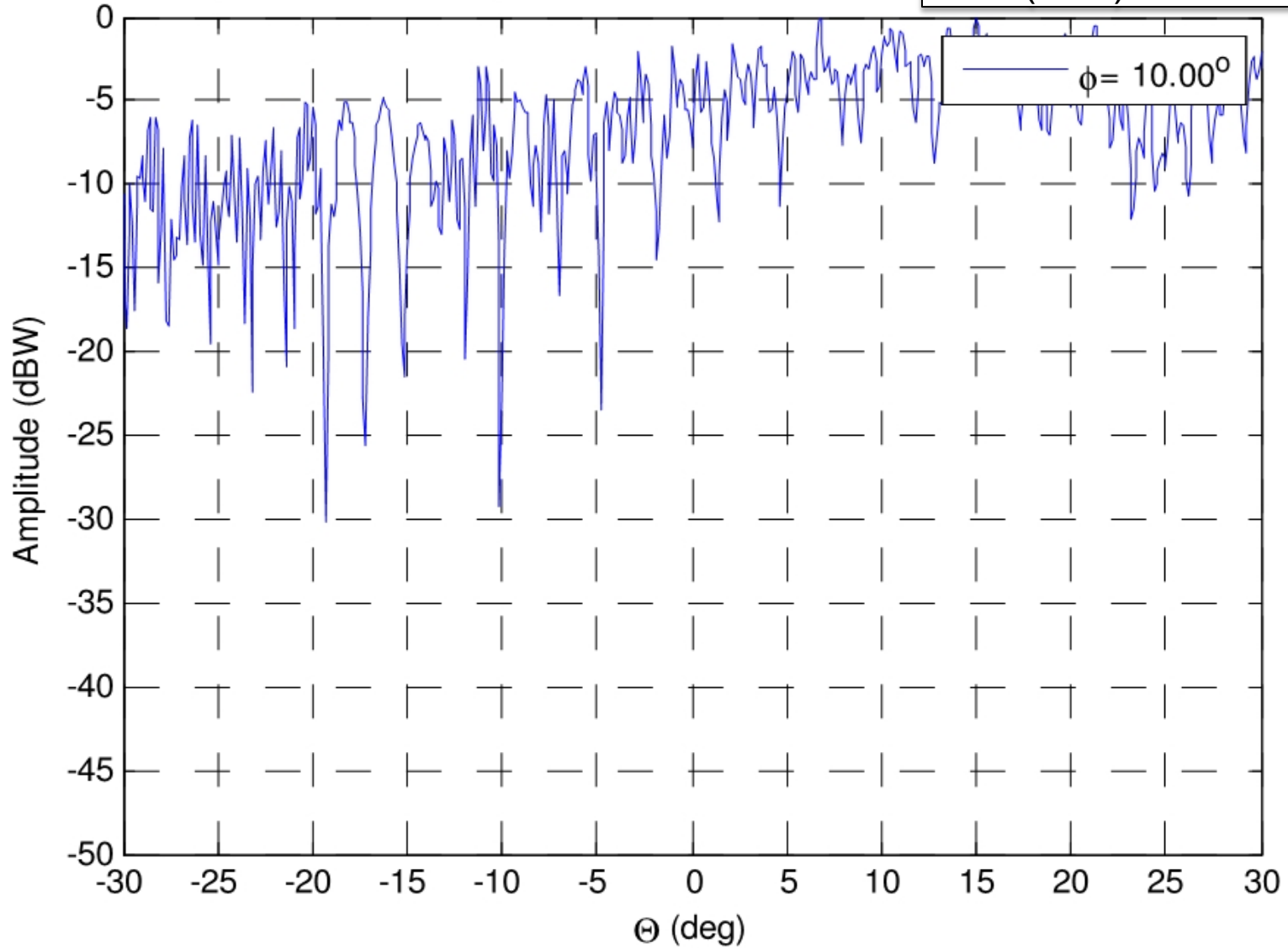
Normalized pattern cuts - farfield

Input file: tx-17.7-lhcp-0.cut, Peak: -1.74 dBW, EIRP (max) = 60.2 dBW



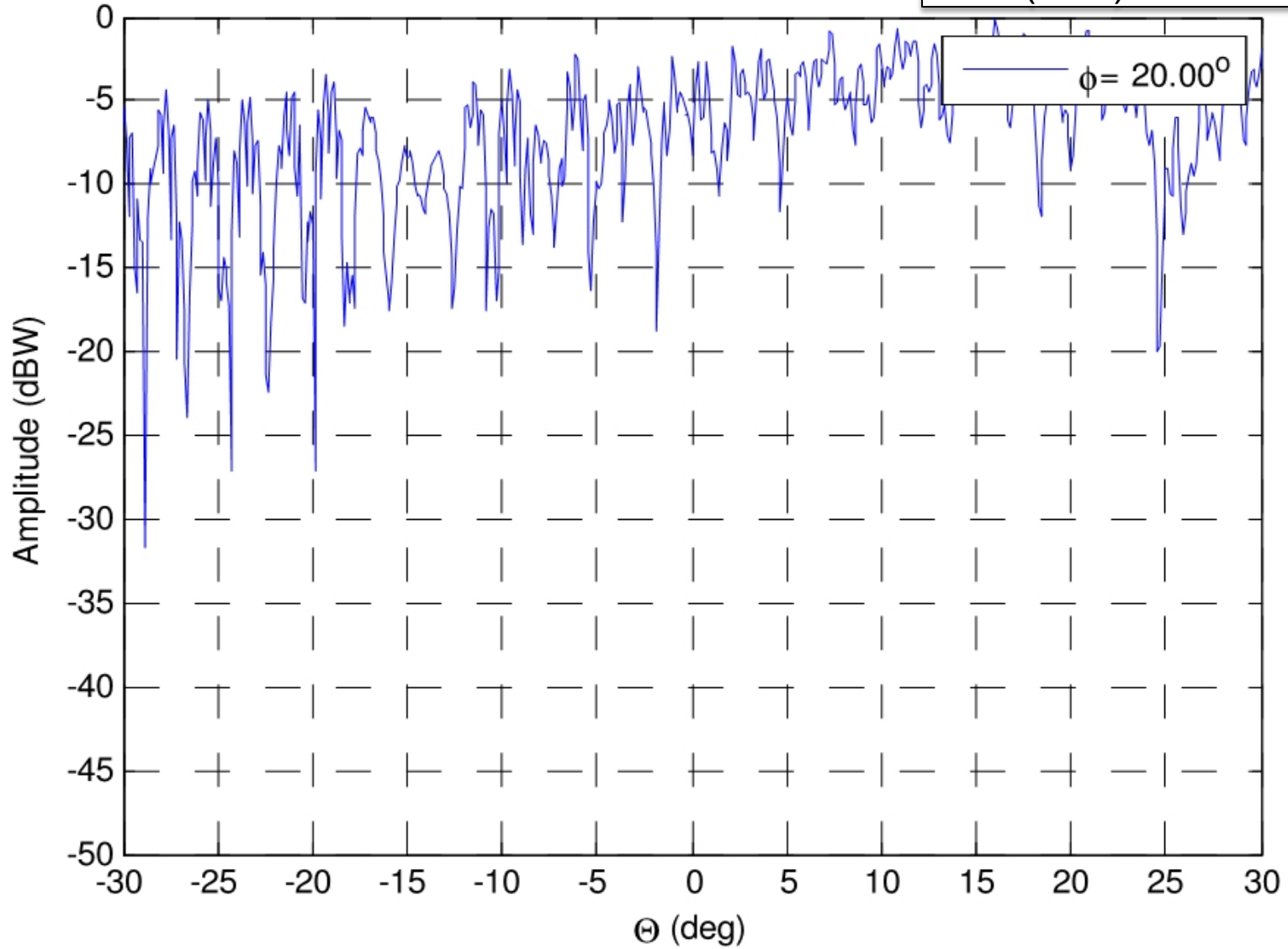
Normalized pattern cuts - farfield

Input file: tx-17.7-lhcp-10.cut, Peak: -2.17 dBW, EIRP (max) = 60.2 dBW



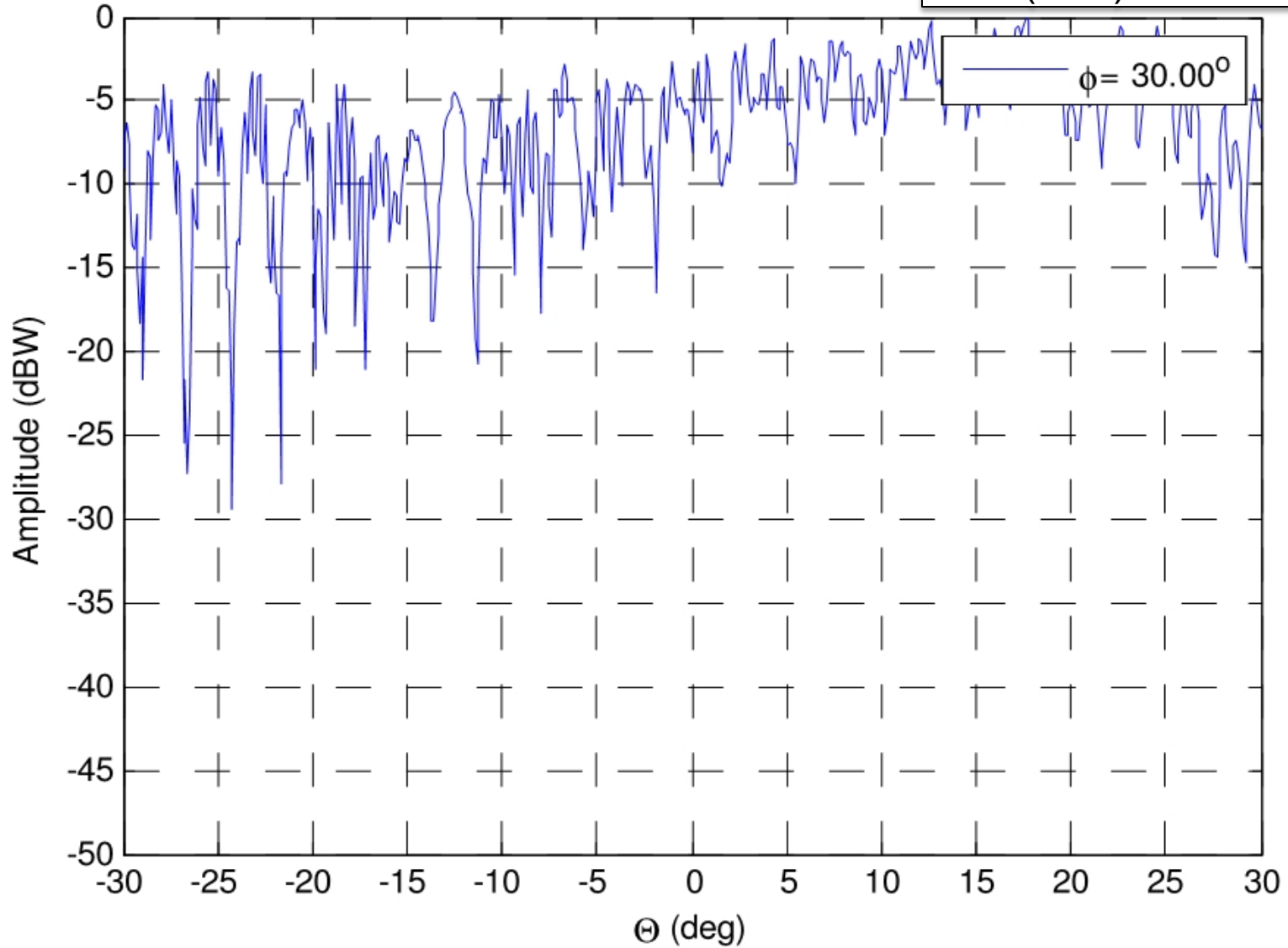
Normalized pattern cuts - farfield

Input file: tx-17.7-lhcp-20.cut, Peak: -1.76 dBW, EIRP (max) = 60.2 dBW



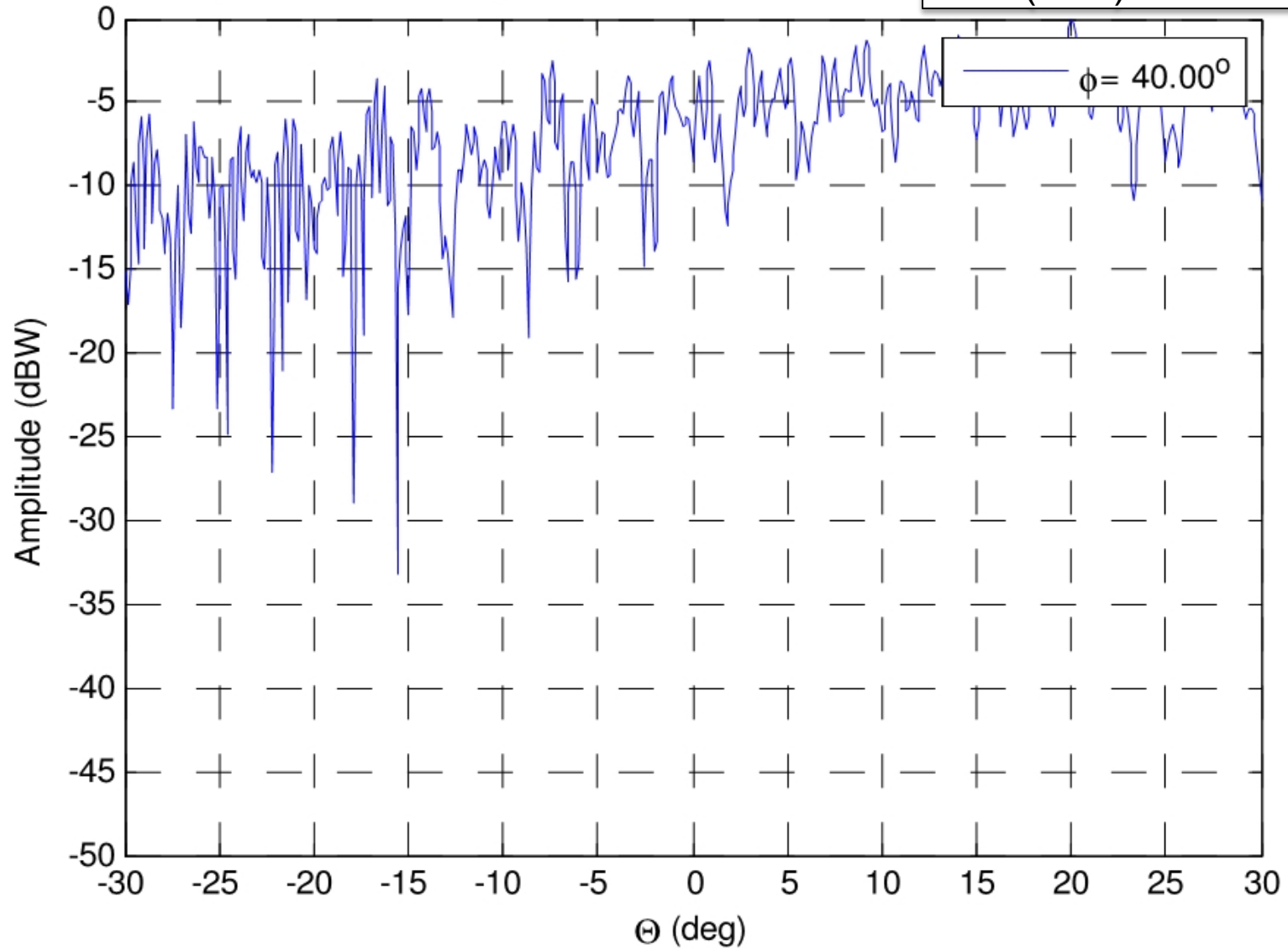
Normalized pattern cuts - farfield

Input file: tx-17.7-lhcp-30.cut, Peak: -1.86 dBW, EIRP (max) = 60.2 dBW



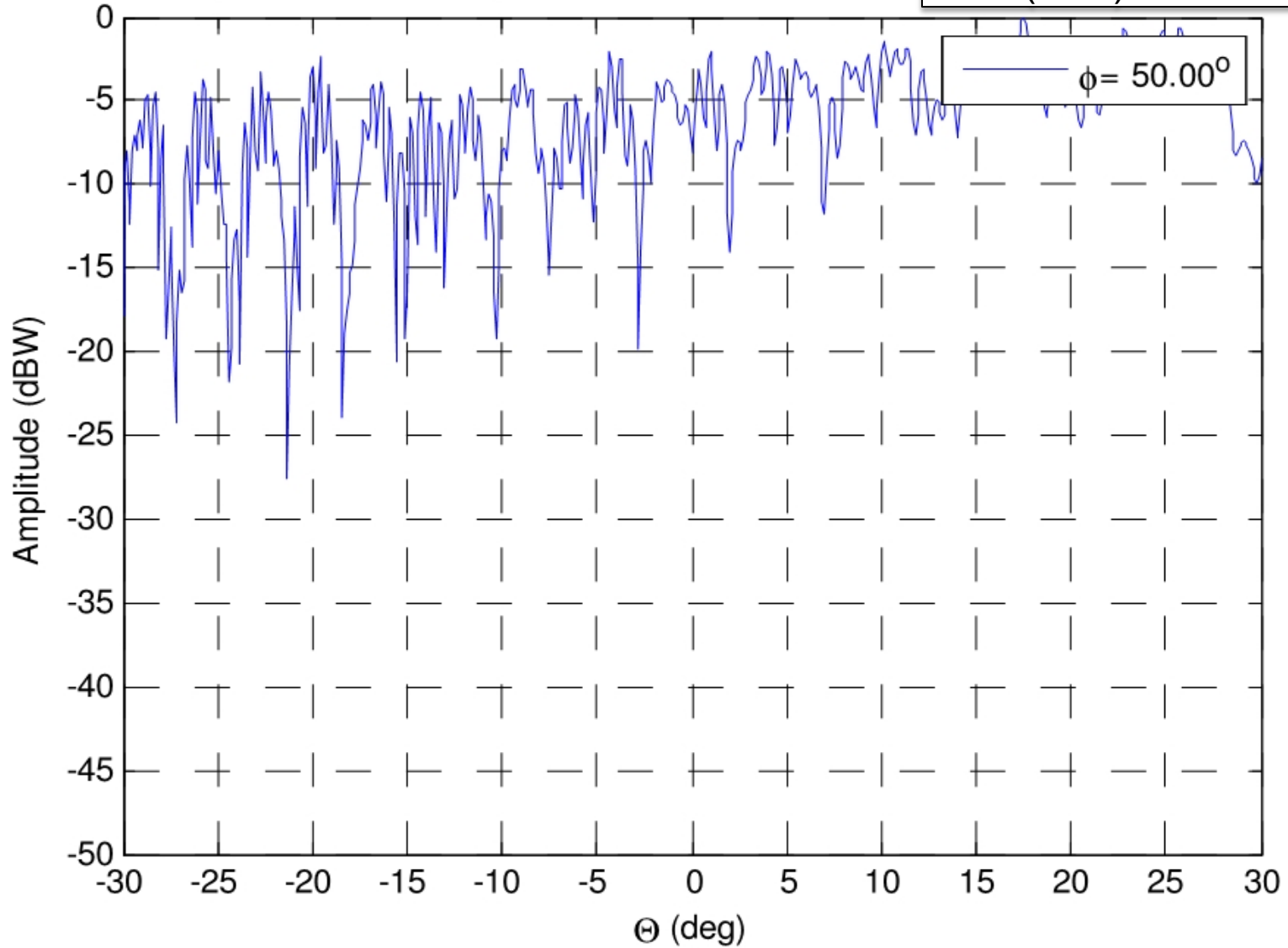
Normalized pattern cuts - farfield

Input file: tx-17.7-lhcp-40.cut, Peak: -1.38 dBW, EIRP (max) = 60.2 dBW



Normalized pattern cuts - farfield

Input file: tx-17.7-lhcp-50.cut, Peak: -1.83 dBW, EIRP (max) = 60.2 dBW



Normalized pattern cuts - farfield

Input file: tx-17.7-lhcp-60.cut, Peak: -1.89 dBW, EIRP (max) = 60.2 dBW

